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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Preparing for After the War

IT is becoming increasingly plain, that, from an industrial and export viewpoint, Great Britain is lagging behind the United States of America in its preparedness for meeting post-war conditions. In the United States the plan which will then become effective is already taking shape. *The Daily Mail* has reported statements in America to the effect that as the last gun, lorry, or bomb rolls off the assembly lines the factories will start immediately on refrigerators, railway equipment, motorcars and other goods for civilian use. There can be no doubt that the United States is preparing actively for the enormous demand for replacement goods which will arise when the war in Europe is over. The need for exports by Great Britain is greater than that of America, but there is no indication that the British Government is doing anything to help or encourage British manufacturers, industrialists, or exporters to cultivate export markets. No designer is permitted to work on post-war goods, nor is labour available for employment in the export trade. On the other hand, in America, manufacturers are to have the benefit of special Government credits the moment the war ends.

The Need for Immediate Action

There is, indeed, no time to be lost if Great Britain is to take her part in the export trade of the world after the war. So far, British official export trade policy since the outbreak of this war has been a long series of muddle and contradiction, and at the present time there is no clear indication that this phase is yet ended. The Board of Trade has never been distinguished by the possession of Ministers with sufficient personality to press the claims of the industry of this country with the Cabinet, and the Department of Overseas Trade, which should be particularly concerned at the present time, is a Cinderella among the departments. So far from encouraging industrialists to go into the export markets, the official attitude has been rather to frustrate their efforts to develop their own enterprises. During, and just after, the last war, when the Board of Trade was responsible for the control of the railways, that control was exercised more or less nominally. The control of industry in the present war has been far more drastic and may prove far more disastrous.

Home Railway Stock Price Movements

Home railway stocks have been a relatively dull market of late, and have not joined in the upward movement which has characterised certain other sections of the London Stock Exchange. The progress of the European war towards its close renews anxieties as to the form which the organisation and control of transport will take after the war. So far, official pronouncements on this point have been very vague, and investors are beginning to appreciate the effects which heavy increases in costs, that have occurred during war, may have on revenues in peace, if and when the present exceptional traffics fall away. No doubt, as we suggested in our July 28 issue, home railway stocks will continue to fluctuate according to rumours and guesses and forecasts of the post-war position of the lines. On a yield basis, many of the home railway stocks are valued far below the generality of investments. This reflects the lack of confidence in the Government's intentions towards the industry which is felt by investors. If a reasonably equitable plan for the future of British transport was evolved and given the blessing of the Government, no doubt there would be a sharp improvement in stock prices.

Another Plan for Post-War Transport

An interesting contribution to the discussion on post-war organisation of transport has been issued in the form of a reprint of some articles which appeared in our contemporary, *Modern Transport*. The suggestions made in this booklet* provide for evolution rather than revolution, and cover all branches of the internal transport system. No support is given for complete unification of transport, or of the railways. Indeed, of the latter it is pointed out that there is no lack of enterprise and experimentation; through the medium of the Railway Clearing House even before the war, there was inter-company contact from top to bottom, and in all matters of major policy the four companies acted as one. A full-time small body of experts to encourage closer union of the various branches of transport and to assist the Minister as to legislation, is suggested during the immediate post-war years. Sir Arthur Griffith-Boscawen, Chairman of the Transport Advisory Council, contributes a foreword to the booklet. In the public interest, free play must be given to indi-

* *A Plan for Post-War Transport.* The Modern Transport Publishing Co. Ltd., Norman House, 105-109, Strand, London, W.C.2. Price 1s. 6d.

vidual initiative. These are the considerations which must govern any transport plan, and some of the broad requirements for achieving this are outlined in the booklet.

Overseas Railway Traffics

The announcement of the payment of the half-year's interest to June 30 last on the Central Argentine Railway 4 per cent. debenture stock caused some improvement in the price of that stock but other Argentine railway issues were generally dull. Traffics for the eighth week of the financial year were good, but those for the ninth week on the Buenos Ayres Great Southern and on the Buenos Ayres Western showed only a limited improvement. The Central Argentine, however, had an increase of £27,480 in receipts for the ninth week and the Buenos Ayres & Pacific one of £24,000. In the same week the Entre Rios showed no change, but the Argentine North Eastern traffic was £2,886 better. The Great Western of Brazil is £202,800 up in its receipts for the present year to date. For the same period the Antofagasta announces an advance of £31,340, and the Nitrate Railways up to the end of August had secured an increase of £23,908.

	No. of week	Weekly traffics £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific* ...	9th	113,400	+ 24,000	1,017,180	+ 258,060
Buenos Ayres Great Southern*	9th	162,180	+ 1,020	1,489,560	+ 178,620
Buenos Ayres Western*	9th	58,380	+ 420	546,960	+ 102,900
Central Argentine*	9th	171,750	+ 27,480	1,533,384	+ 342,126
Canadian Pacific	35th	2,077,800	+ 181,800	42,064,400	+4,118,400

* Pesos converted at 16⅔ to £.

Aggregate net earnings of the Canadian Pacific Railway from January 1 to July 31, 1944, amounted to £5,267,800, an increase of £241,200 in comparison with those for the corresponding seven months of 1943. Aggregate gross earnings were £36,378,200, an improvement of £3,803,400.

Railway Civil Engineering Accounts

Railway civil engineering accounts form a subject on which there is surprisingly little standard literature, although this lack may be made good to some extent by the great mass of departmental instructions which are issued by the engineer's accountant on every railway. The form in which these accounts have to be kept is prescribed by the Railway Accounts & Returns Act, and of the various divisions of a railway company's chargeable expenses account Abstract "A" covers most of the functions usually allotted to the Civil Engineer. The civil engineering accounts of the main railways of the United Kingdom have been built up around the framework of Abstract "A," and this practice has been adopted to a large extent on the Continent and in many places overseas. On another page is published an abstract of a paper read by Mr. Frank Lawson before the Permanent Way Institution, which deals with the need for care in connection with the rendering and preparation of accounts, and shows the basis which has been adopted in the development of Abstract "A." Some useful indications are given as to the best means of dealing with the various items required in its return.

Improving Trade in China

According to the Chungking *Central Daily News*, there has been a brisk revival lately in both the import and export trade of China, and about thirty import and export firms have been formed recently. For a number of years China's trade has been at a very low level, largely because of factors arising from its long war with Japan, and, more recently, in particular because of difficulties of communication with the outside world. There can be no doubt that China will be one of the largest markets in post-war years and that one of its most pressing needs will be railway materials and equipment of all kinds. The potentialities inherent in the development of this market are very great, and the effects of an improved standard of life within so large an area as China, with its huge population, would have repercussions throughout the world. As one of the United Nations which has borne its full share in the present war in the East, China's claims on the manufacturing resources of Great Britain, when peacetime production is resumed, will be prominent. A modern and highly efficient railway system will be essential to the full economic and social development of the country.

Soil Conservation in the Sudan

The Engineering Department of the Sudan Railways has recently undertaken soil conservation measures in the Erkowit district to safeguard the grazing for cattle owned by Arabs. As a result of comprehensive works, planned and executed entirely by the Engineering Department of the railway, and carried out by local Beja labour, greatly improved conditions have resulted. Mr. G. W. Power, New Works Engineer of the Sudan Railways, has described the work in a recent issue of *The Sudan Star*. The measures adopted came under two headings; first, the control of deep gullies which were being formed in the lower levels of the valleys by the rapid scouring of water running down the hillsides and carrying away rich alluvial deposits, and, secondly, stabilising the valley bottoms by a system of contour bunds at the bottom of the hillsides, to check the water from rushing across the valley. By providing masonry drop inlets at the ends of the gullies and building a series of dams across the gullies below the drop inlets, an increasing deposit of silt is obtained. The bunds are low earth banks; behind is a ditch with a constant slope, and of increasing width so as to deal with all the water which flows into it. Good grazing has been obtained in the ditches and along the contour bunds. Further work has been carried out with a view to improving the supply of sub-soil water, and the supply in local wells.

A Three-Deck Passenger Carriage

A three-deck streamline passenger carriage to seat 112 passengers has been designed by the Pullman-Standard Car Manufacturing Company, U.S.A., for post-war manufacture. It is designed primarily for the use of season-ticket business travel, but the arrangement of the interior can be changed to make it suitable for use on long-distance trains. Some details of this novelty in passenger rolling stock and an illustration are given on page 257. Double-deck passenger carriages have been tried in other parts of the world, but without outstanding success. In our September 16, 1927, issue some details and illustrations were given of a double-deck passenger carriage with seating capacity for 128 passengers, which was designed for use on suburban services of the South African Railways & Harbours Administration. Double-deck vehicles have also been used on certain suburban routes in the Paris area for very many years. In the case of the coach built for the South African Railways, some complaint was raised that conditions in the lower deck became unpleasant because of heat. The generous loading gauge of the United States railways may enable the construction of a more roomy and comfortable vehicle than would be possible in this country.

Brazil-Paraguay Railway Links

From various reports which we have received from Brazil, it would appear that considerable attention is being paid by the Brazilian Government to the construction of railway links between Brazil and Paraguay. The most northerly branches from the North-Western Railway at Campo Grande, and is to extend eventually to Villa Concepcion in Paraguay. This route was intended originally to cross the frontier at Bella Vista, but it appears that the course now selected is through Ponta Porã and Caballero. As already reported in our columns, the 96-mile section between Campo Grande and Maracaju is said to have been opened on April 25 last. In connection with this route, an agreement between Brazil and Paraguay was signed on August 11 whereby Paraguay grants to the State-owned North-Western Railway of Brazil the right to build the link on Paraguayan soil between the town of Pedro Juan Caballero and the river port of Villa Concepcion. The middle route will be provided by the long-contemplated extension of the San Paulo—Parana line, which was recently purchased by the State from its British owners to facilitate the work. Both these lines will give Paraguay its desired access to the port of Santos. The third route, *via* Iguazu, is one about which no recent information is available, and it is possible that the Parana route (now being incorporated into the Parana-Santa Catarina Railway Administration) might be extended to Iguazu and thus render the southernmost line less necessary. A map of the area is published on page 257.

Magnesium in Coach Construction

Among unusual materials which hitherto have been little known outside wartime industries, but have recently been applied with some success to American rolling stock construction, is magnesium alloy, because of a low elastic modulus, which is less than one-quarter that of mild steel, and of its ultimate strength, which is not more than 18 to 19 tons per sq. in., magnesium cannot be used for structural purposes, but with its light weight and suitability for extrusion it is found useful in various other ways. It corrodes readily, and for that reason must be thoroughly covered with a suitable protective coating, while pockets that might trap corrosive media must be avoided. It must be kept out of contact with copper or alloys containing copper, and should not be fastened in place with steel screws unless they have been plated. The application of heat is desirable in forming magne-

sium into the shapes required, and it is claimed that this does not affect its properties. In using heat, however, the fire risks associated with magnesium must not be overlooked; it is with the more finely divided material, such as turnings, grindings, drillings, etc., that the hazard is greatest, in shops which have to deal with magnesium; and thin sheets of magnesium also constitute a fire risk, both in coach-building shops and in the finished rolling stock.

Accidents at U.S.A. Crossings in 1943

In 1943, accidents at United States level crossings resulted in the death of 1,732 persons, and injuries to 4,217, as compared with 1,970 and 4,616 respectively in 1942; the number of crossing accidents in the two years was 3,781 and 4,150 respectively. Midwinter remains the time of greatest accident frequency—December in 1943 and January in 1942 were the worst months—and Saturday continues to be the worst day. Of the accidents, 54 per cent. occurred in daylight and 72 per cent. in clear weather. Of all fatal accidents on United States railways in 1943, resulting from train operation, 37 per cent. were at level crossings, as compared with 39½ per cent. in 1942. Passenger motorcars were involved in 60 per cent. of the crossing accidents, and lorries in 23 per cent.; in 1943 these percentages were 70½ and 19 per cent. respectively. Pedestrian fatalities have gone up from 197 in 1940 to 304 in 1943, and now form 12 per cent. of the total. In nearly 39 per cent. of the accidents involving road motor vehicles, the crossings were protected by gates, watchmen, trainmen, or audible or visible signals indicating the approach of trains. In the various collisions between rail and road vehicles 1,397 passenger and 1,317 freight trains were involved; in 77 per cent. of cases the freight trains were running at less than 30 m.p.h., and in 8 per cent. standing freight trains were run into by road vehicles; as to passenger trains, 33½ per cent. of the trains affected were travelling at between 10 and 29 m.p.h., and nearly 22 per cent. at over 60 m.p.h.

An American Signalling Authority

The death of Mr. B. B. Adams, recorded on page 263, removes not only one of the best-known figures in railway journalism in the U.S.A., but also one of the greatest authorities on signalling and train operation on the other side of the Atlantic. Mr. Adams, who had been in active railway service for some 20 years, turned to technical journalism nearly 60 years ago, and eventually specialised in signalling, operating, and accident questions, to which he devoted the closest attention and which he handled with marked ability. He became known for his leading articles on safe working and his advocacy of the principles of the block system as essential safeguards to the older train-dispatching methods. Mr. Adams also made a careful study of signalling in Great Britain and on the Continent. About 40 years ago he wrote a book on the various forms of block signalling in service on American railways, marked by his usual wide grasp of principles and familiarity with detail, which makes instructive reading even today, when so much of what he described has been superseded. He was also the leading compiler of the "Railroad Signal Dictionary," a comprehensive compendium of American practice, and a contributor to numerous works of reference, including the "Encyclopædia Britannica."

A Failure of a Disengager

The accident at Dumfries, L.M.S.R., on June 12 was due to an unusual failure of a little-known piece of apparatus. As will be seen from the summary of Colonel Trench's report (page 269), a false distant signal indication was produced by a failure of a disengager mechanism known as the Hellier & Gasson control. This device was patented in 1911 (Patent No. 16,662) by two officers of the Signal & Telegraph Department of the L.S.W.R., Mr. A. E. Gasson, the Chief Draughtsman, and Mr. W. T. Hellier, an Assistant, but we do not know to what extent it was adopted on that railway or elsewhere. It was one of several arrangements introduced for controlling, without ordinary slotting, distant signals in short sections, or other signals in certain circumstances. The apparatus comprised a lock on the outer signalman's lever and a hook engagement piece for connecting it to the transmission when the inner signalman pulled his, so that the lock was released at the same time. Both lock and hook had a one-way action to prevent damage should the levers be moved in an unusual order. At Dumfries, the return counterweight of the inner signal, or control, wire had fallen off its carrying bar, leaving the apparatus in due course incorrectly in engagement, and the outer signalman, who had not noticed that his electric indicator had for some time being showing "off" was able to lower his distant signal without the consent of the man in advance. Two more boxes then cleared theirs, and added to the seriousness of the situation.

Railway Exports and Latin America

DURING the war the countries of Latin America have been largely cut off from exports of British manufactured goods of all kinds, and as a result concern has been expressed in some quarters as to the problems which will face British exporters when they endeavour to re-open trade in those countries. We have expressed the view that there will be a large demand for railway engineering equipment of all kinds in Latin American countries, and that in view of the high reputation which British engineering products have always enjoyed, and the need to expand our export trade to the maximum, special efforts should be made to secure adequate representation there of United Kingdom railway supplies.

The Bank of London & South America has issued a twenty-eight-page booklet, entitled "Post-War Markets in Latin America." It is based on reports received from the bank's branches all over the Latin-American Continent, and it provides an opportune guide to British industrialists at the present time. It points out that the outstanding wartime feature of the Latin American countries has been the accumulation of very large reserves of currency abroad. Argentina is an outstanding example. It has large balances in London, and if it can be induced to use them for the purchase of British goods, substantial business will have been attained. These accumulated reserves represent to an important extent pent up purchasing power which has been unable to find an outlet because of wartime import difficulties. The dollar and sterling balances, therefore, should be available, in large part, to pay for urgently-needed imports as soon as the relaxation of war requirements in the United States and in the United Kingdom permit of their manufacture and export.

In addition, the Bank finds that there is every evidence of willingness in Latin America to resume trade with the United Kingdom when and where possible. Coupled with the pronounced dearth of imported goods there, this points to future possibilities of new sterling exchange and an expansion in British purchasing power. Because of the vital necessity for restoring British export trade, the view might be held that British industry might be given priority for manufacturing the large range of capital and consumer goods urgently required in the important Latin-American markets as soon as the course of the war permits.

The comments of the principal branches of the Bank were sought with particular reference to the various classes of British goods likely to be required in Latin America in the post-war era. The comments from some of the more important countries are set out in abridged form below:

Argentina.—The United Kingdom enjoys three outstanding advantages in Argentina. First, whatever Government may be in power in Argentina, Great Britain is likely to enjoy more goodwill than any other first-class power. Secondly, as most of the public utilities in Argentina are British-owned, it is reasonable to expect orders to be given preferentially to Great Britain. Thirdly, British products and methods of business, when conditions are approximately equal, are preferred to those of other countries. The need for foodstuffs in Europe after the war will ensure Argentina continuing to have a large export movement for at least a year or two after the cessation of hostilities. Argentina is expected to have more than sufficient foreign exchange to pay for her huge accumulated import requirements, notwithstanding the repatriation of a considerable amount of foreign debt. National industries have made great strides, but in many lines, such as heavy machinery, Argentina must buy from abroad. Among the urgently needed requirements of Argentina are listed railway locomotives, coaches, and spare parts, railway material, bicycles and accessories, iron and steel of all kinds, agricultural machinery and tools, electrical goods, various motors and machines, iron pipes, iron and steel wire, motor machinery and motor vans, electric motors or dynamos, and materials for radio telephony.

Paraguay.—The import items which are likely to be required in Paraguay include rolling stock and rails, machinery, motor transport vehicles, paints, plastics, and steel for constructional purposes. Paraguay's sterling balances are small; her export balances are held principally in Argentina, Brazil, and the United States. The last-named is well organised in Paraguay for the resumption of normal trade activities.

Uruguay.—Probable post-war import requirements from Uruguay are stated to include copper, metals in general, tinplate, machinery, and motor vehicles. Provided prices are right, Great Britain should encounter no major difficulty in her efforts to regain her pre-war position as Uruguay's principal supplier. The considerable interest shown today by Uruguayan importers to resume trading with Great Britain is stated to be due largely

to the generous terms of payment previously accorded them. Many importers base their reluctance to trade with the United States on the obligation generally imposed of having to open bank commercial credits which, in many cases, have to be made available against inland documents, thus forcing the importers to accept, in addition to all other risks, ultimately that of obtaining freight space.

Brazil.—The many lines of imports urgently required in Brazil are transport material of all kinds, particularly aircraft, ships, locomotives, wagons, rails, signalling apparatus, motorcars, lorries and spare parts, iron and steel and non-ferrous metals (manufactured and semi-manufactured), tools, machinery and accessories, electrical material, and so on. During the war Brazil has accumulated considerable sterling balances, part of which will be needed to meet cash payments due under her External Debt scheme. Regulation of British imports after the war to keep the balance of payments in equilibrium and the ensuring of priorities for imports of essential foodstuffs and raw materials, may restrict the volume of exports to Brazil from the United Kingdom. Another factor likely to influence the liquidation of Brazil's sterling credits is the present tendency to take over the interests of British concerns and to acquire foreign railways and utilities. If priorities for the manufacture and export of goods most urgently required in Brazil are given in time to enable British exporters to supply such goods at the earliest possible opportunity, and at competitive prices, there can be little doubt that Great Britain will be able to rebuild a considerable export trade with Brazil; if British exporters are unable to supply goods at the same time as the United States exporters, it is expected that the best part of the country's import trade will pass into the hands of the United States.

Chile.—The most urgent demands at the present time are for machinery of all kinds, machine tools, and road and rail transport material. The State railways, it is stated, have now reached a point where lack of rolling stock, and the deteriorated quality of such as exists, is hampering the development of the nation's industries. High-class machine tools, small and medium diesel engines, locomotives, passenger carriages, goods wagons, and diesel-electric railcars, are all urgently required. Chile has no surplus sterling funds at her disposal. Her exchange position in sterling at the end of the war will depend principally on her nitrate market in Egypt, the amounts derived from United Kingdom remittances, and the volume of shipments of British goods.

Venezuela.—This country has accumulated considerable exchange reserves during the war and the shortage of goods is relative rather than absolute. It is expected that there will be a large demand for many classes of merchandise, but, it is stated, trade is unlikely to be forthcoming except under stimulation.

Peru.—Principal goods in short supply are all types of electrical equipment (especially cables), tools of all kinds, iron ware, especially corrugated and plain iron sheeting, tinplate, machinery, motor lorries, motorcars and spare parts, steel rails of all kinds, and similar goods. Peru has no balance of unusable sterling, neither is it likely to build up sterling balances.

The Train Service Muddle

FEW better arguments could be advanced for the desirability of permitting the railways to manage their own affairs than the train service position which is referred to briefly on page 265 of this issue. On May 22 the four main-line companies brought into operation their summer timetables, carefully thought out, as usual, in relation to traffic demands and the resources available to meet them. As soon as the station timesheets had been posted, and the timetable books were in circulation, the Ministry of War Transport issued an instruction that train services must be reduced immediately, and on an extensive scale, but that no printed announcements of the cancellations were to be made.

Many of the daily newspapers, not entirely, it may be imagined, without official inspiration, drew gleeful pictures of the righteous retribution befalling travellers arriving at stations only to find that their advertised trains were not running, and moralised on their having several hours in which to meditate on the folly of travelling at all—irrespective of the reasons which may have compelled them to travel—before the next departure. The justification for the Ministerial edict, doubtless, was the near approach of "D" Day, but it rather overlooked the fact that by far the major proportion of the men and equipment needed for that great event had been brought to the coastal areas, as prudence would dictate, long before that date, and that the withdrawal of the trains, therefore, was unlikely to have any effect on the pending operations.

During June and part of July, the overcrowding of trains was probably the worst that has ever been known in British history, and the masses of would-be pasengers congregated at London terminals, at a time when the flying-bomb menace was at its worst, invited casualties on a serious scale. After some weeks had elapsed, the railways were permitted to post lists of the withdrawn trains, and later to publish pamphlets setting out in detail the whole of the withdrawals and consequent alterations, which on the L.N.E.R., as we have mentioned in a previous issue, ran to a pamphlet of 127 closely-printed pages. But meantime passengers found that not a few of the supposedly withdrawn trains were creeping back into service, or that the remaining trains were being duplicated—the railways could hardly do otherwise, to relieve the congestion—and the Ministry of War Transport has now intimated that trains may now be run as the railways may deem necessary. The need of such liberty has been made all the greater by the general restoration of leave to the Forces, which took place at the precise time when the train services had been cut to the minimum.

The position now verges on the chaotic. Neither the printed timetables of May 22, nor the printed alteration sheets or pamphlets subsequently published, give any complete picture of the train services as now being run; and any timetable which is inaccurate is little better than waste paper. On the L.N.E.R., for example, an intolerable burden is thrown on the 10 a.m. "Flying Scotsman" and its 9.40 a.m. relief by the fact that the 12.45 p.m. to Edinburgh and 3.50 p.m. to Newcastle are announced as withdrawn, though they are actually running. In such circumstances the restored trains are almost bound to run with relatively light loadings, whereas some of the trains which have run continuously may require duplication because of the traffic thus concentrated in them.

In the end, therefore, more mileage than ever may be run because of this uneven distribution of the passengers. From the viewpoint of the railway companies, the worst feature of all this muddle is that the railways themselves are the losers of public goodwill by such happenings. It is the railways who arrange the trains, and therefore, in the public view, if the trains are packed to suffocation, or if advertised trains fail to appear, or if supposedly cancelled trains are running after all, the railways ought to be ashamed of themselves for such inefficiency. Another aspect of the situation is the enormously increased use of the telephone services which is entailed by changes that are not publicly announced. Railway enquiry staffs at all the London termini have been overwhelmed with telephonic enquiries, and our own experience is that there have been many days when all public telephone lines to the main-line railways have been engaged continuously. It is to be hoped that, when the winter train services come into operation, the railway companies may be permitted to make, without interference, the arrangements that their expert experience dictates as necessary and practicable.

British Railways and Locomotive Fitments

THE working in this country of British and American "austerity" locomotives, manufactured by private builders for the Ministry of Supply, has resulted in the introduction to the main-line railways on a large scale of such locomotive details as the rocker grate, drop ashpan, and self-cleaning smokebox, and some valuable experience has been gained by the British railways in the use of locomotives embodying these features, which hitherto have not been standard fitments on engines used by home railways, although they have been widely used overseas on locomotives built in this country.

The rocker grate permits of quick disposal of the fire in the ashpit and makes it an easy matter for the fireman to break up clinker over the whole area of the firegrate whilst the engine is at work; the dropping of the fire, disposal of ashes in the ashpit, breaking up of the clinker, dropping of the fire into the ashpan, can be performed in from 5 to 10 min. at the locomotive depot, whereas with the type of grate and ashpan normally fitted hitherto on British railway engines, the same operations would take from 20-30 min., and in some cases 50 min.

It is standard practice on the usual type of ashpan to control the admission of air by the provision of dampers, but with the hopper type of ashpan this is not possible. Provision is made in the designing of the hopper-type ashpan for air to be admitted through the space between the top of the hopper ashpan and the side of the firebox at foundation-ring level; the quantity of air supplied to the fire is regulated by the draught created by the fire and the supply of air thus varies according to the amount of work the engine is being called on to perform. It has been found that this is quite a satisfactory arrangement and does not result in increased coal consumption or excessive blowing off at the safety valve, and also has the advantage of dispensing with the dampers and damper-control gear. The use of hopper-bottom ashpans and drop grates would result in engines being diagrammed

away from a motive power depot for longer periods than at present; provision would have to be made at selected and agreed points either for ashpit accommodation or for the permanent way to be protected by iron plating against damage by hot ashes.

The smokebox referred to as a self-cleaning type is designed so that the volume of the smokebox has a predetermined relationship to the volume of free air which can pass over the brick arch; it is fitted with baffle-plates which extend from the top of the smokebox to the top of the blast pipe, and this arrangement results in a more even distribution of vacuum in the smokebox over the whole area of the tube-plate. As a large proportion of smokebox char is emitted from the higher rows of tubes, the greater proportion of the char, therefore, is broken up by contact with the baffle-plate into fine particles; these fall towards the bottom of the smokebox and are caught in the stream of gases emitted from the bottom rows of tubes, and are readily expelled through the chimney by blast. This results in a very small quantity of smokebox char being deposited on the floor of the smokebox. It has been found, in practice, that the smoke tubes are cleaner than is usual with the orthodox British arrangement of smokebox, and experience has shown that it is not necessary to clean the tubes or empty the smokebox between one washout of the engines and another.

The interesting features mentioned in the foregoing short description of the rocker grate, hopper ashpan, and self-cleaning smokebox arrangements, as fitted to the engines now being used on the railways for freight working, no doubt will result in their more extended use on the British railways. This would be specially beneficial in the case of engines required to be maintained in traffic as many hours as possible.

Revival of an Early Heating Project

IN peacetime, fuel economy is pushed only to the point where it is compatible with monetary saving; no increase in thermal efficiency would be thought worth securing if the fuel bill reduction happened to be offset by increased operating, maintenance, and capital costs. A world scarcity of fuel, whether it be occasioned by war as at present, or by the exhaustion of natural supplies as it may be in the future, puts a different complexion on the matter; fuel then becomes something worth saving even at an otherwise prohibitive cost. Many years ago Lord Kelvin proposed to utilise a reversed-heat engine, or refrigerating machine, for the warming of buildings and other inhabited quarters where comfort demanded the maintenance of temperatures only a few degrees above that of the atmosphere; his proposal attracted little attention because the main object of the fuel industry in his day was to sell, and not save, its product. Today heating and ventilating engineers are being compelled by circumstances to reconsider Kelvin's idea, as this offers very great savings in fuel in return for the installation and operation of a somewhat elaborate plant.

Briefly, the proposal is to use power for driving a refrigerating machine, such as is used in air-conditioning, but with the connections of this machine reversed so that it takes heat from outside a building or railway carriage instead of inside and puts heat inside the building or railway carriage instead of throwing it away to the atmosphere outside. The refrigerant evaporator, normally inside the carriage, will be underneath, whereas the refrigerant condenser, normally underneath, will be inside. With this arrangement the apparently paradoxical result is to take heat from a freezing-cold outside world and introduce it into railway compartments; these are made warmer by making cold outside air still colder. Power is expended to produce this unnatural result and the refrigerating machine, which may more aptly be called a warming machine when used in this way, converts this power into heat and delivers it with the rest. There is thus a double effect, the second of which, by itself, is all that can be got out of electric power used directly in radiators.

The total heating obtainable in theory is the heat equivalent of the work expended multiplied by the ratio of the absolute temperature inside the carriage to the difference between this and the outside temperature. Thus, if the outside temperature be 32° F. and the required inside temperature be 60° F., the warming effect for every 778 ft.-lb. of work done is (459 + 60)/(60 − 32) = 18·5 B.Th.U. The same amount of energy, available as electricity, would yield only 1 B.Th.U. of heat if expended in an ordinary resistance-type radiator. Supposing 4 B.Th.U. to be consumed at the power station to produce this amount of electricity, it follows that the warming efficiency will have gone up from 25 per cent. to 1850/4 = 462·5 per cent. In other words, there can be obtained for warming purposes more than four-and-a-half times the calorific content of the coal expended. If the power be taken from the axle of a carriage hauled by a steam locomotive the figure of 4B.Th.U. would need to be increased to 10 B.Th.U. or more, so that the warming efficiency would be only 1850/10 = 185 per cent. or less.

For several reasons, practical results must fall somewhat short of theoretical ones, so that where power is produced uneconomically from heat it will almost certainly be better to produce warmth by applying part of that heat direct; this is the usual practice on steam-hauled trains which are also steam heated; the thermal inefficiency of steam locomotives makes it highly probable that warming by steam is as efficient a method as any other could be in the circumstances. In electric and diesel trains, however, where power is obtained for half to a quarter of the fuel expenditure, the Kelvin method of warming offers a good prospect of further fuel saving. Where vapour-compression air-conditioning equipment is already installed it should not be difficult to adapt this for heating, instead of cooling, carriages.

Transport of Troops by Rail in 1832

DESPITE the secrecy under which the railways are compelled to operate, they clearly demonstrate their importance in the war effort, and all those actively engaged in the struggle would readily admit that it would be impossible to wage a successful war unless an efficient railway system were operating and supporting all fronts. What is not generally known is that it was over 110 years ago that the military experts both in this country and abroad, showed remarkable foresight in recognising in the suggested construction of railways a means whereby they would be able to transport troops and material from one point to another easily and rapidly.

It was in 1832 when Mr. Henry Booth, Secretary of the Liverpool & Manchester Railway Company, gave evidence before a committee of the House of Commons on the London & Birmingham Railway Bill; on June 28 he said: "We took a whole regiment at the beginning of the year. There were 800 with a large quantity of baggage, which was necessary to be shipped to Ireland." At the time, some of the committee seemed to think that the proposed line was too close to the great military depot at Weedon and it might be a source of danger as it would facilitate the assemblage of large bodies of lawless persons desiring to obtain arms. The military authorities did not, however, share this fear, and it is recorded that when General Sir James William Gordon gave evidence on July 3, 1832, it was to the effect that: "In cases of emergency it would be very desirable to send troops by this method of conveyance which would be very rapid and safe. In cases of emergency where bodies of military men required to be assembled suddenly for public service at a given spot, then I should say that a rapid conveyance very desirable and by railroad certainly. I have practised on the railroad between Liverpool and Manchester with great effect and benefit to the public service."

If General Sir James William Gordon were alive today, he would be astounded at the fact that, when an infantry division now goes overseas, it takes with it 9,000 tanks and vehicles, besides tons of food and ammunition, and all this is conveyed to the ports of departure by the railways. He would also be gratified to learn that the opinion he expressed at that committee, that when rapid conveyance was desirable the sending of troops by railroad was recommended in the cases of emergency, has been endorsed again and again by his successors.

The Germans at that time were also fully alive to the strategical importance of an efficient railway system in event of war, and a book on this subject was presented to the Library of the Institute of Civil Engineers in 1897. It is entitled "Die Eisenbahnen als Militärische Operations-linien." It was published by Adorf in 1842; the author conceals his identity under the pseudonym "P. Z." but a long chapter is devoted to the use of railways in event of a possible war between Germany and France. The author displayed a gift of prophecy, as some of the operations he outlines are supposed to take place in the districts which were later made famous in the Franco-Prussian war of 1871, and the European war of 1914-18.

PAPER SALVAGE IN FACTORIES AND OFFICES.—The restrictions in force on the use of paper by private persons, and the general shortage of that commodity, render it impossible to rely to the same extent as in the earlier years of the war on domestic premises for the considerable amount of paper salvage needed for the war effort. This means that more and more dependence must be placed on factories and offices for the recovery of waste paper. The importance also of economy in the use of paper by commercial and industrial establishments cannot be emphasised too strongly.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

A Monster Train of 1844

Crathorne, Stafford. September 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The following extract from *The Staffordshire Advertiser* of August 17, 1844, may be considered of sufficient interest for insertion in your journal.

"A special pleasure train of the Manchester & Leeds Railway left Wakefield for Hull on Monday last, consisting of 97 carriages, with the extraordinary, and, we believe, unprecedented number of 4,000 passengers. Not the slightest accident occurred and the parties returned at night within half-an-hour of the appointed time, the whole highly delighted and grateful for a cheap and pleasant trip."

Yours faithfully,

F. PLANT

A Fighting Fund for Freedom

96, McIntyre Road,
Worcester. September 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In their letter on the above subject which appeared in your September 1 issue, your correspondents did not explain that State control during the present emergency may be divided into two broad types:—

(*a*) restrictions on individual freedom of movement, expression of opinion, and disclosure of information—imposed for security reasons, and

(*b*) control of industry—of all kinds—with the object of eliminating waste and securing maximum production.

By submitting to (*b*) industry has tacitly agreed that its pre-war system cannot be relied on to minimise waste and increase production as much as possible. If these objects are also desirable in time of peace—for the benefit of every individual, not only in the interest of those connected financially with any industry—then the case against control (*b*) has not been stated.

In the post-war legislation to which your correspondents refer, control will be found to be of type (*b*), and it should be remembered that the Government has been—and should be—acting as the agent of the people as a whole. If the people are encouraged and helped to register their own decisions—particularly on matters of principle—there should be no fear that Governments will not be representative.

The present State controls have been set up constitutionally, and although all individuals wish—and I think rightly so—that restrictions of type (*a*) should be removed as soon as possible, it appears that your correspondents are attempting to use this same desire to serve the abolition of controls (*b*), the case for removal of which by no means has been proved.

Yours truly,

JOHN C. BUTTON

L.N.E.R. Services out of Marylebone

22, Barnhill Road, Wembley Park,
Middlesex. September 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In his interesting letter in your September 1 issue, Mr. George Snowdon suggests very sweeping changes in the operation of passenger services which, together with projected electrically-operated goods services, are far more ambitious than those planned by the L.P.T.B., L.N.E.R., and G.W.R.

Although the rush-hour traffic on both the Metropolitan & G.C. line to Aylesbury and the G.W. & G.C. line to Wycombe is certainly heavy, at other times it is easily catered for by existing services. Would electrification between London and Wycombe or between Amersham and Aylesbury be justified? The standards set by these services before the war were extremely good, and, on completion of the projected electrification to Amersham and Chesham, will be further improved. Fast services, to a systematic timetable, from Marylebone calling only at Harrow and Rickmansworth to Amersham, and stations thence to Aylesbury, could bring this town within 60 min. from Marylebone. Connection from intermediate stations would be made at Amersham by use of electric services.

On the Wycombe line the traffic between High Wycombe, Princes Risborough, and Aylesbury seems hardly sufficient to justify the expense suggested, although the institution of a frequent railcar service between these towns would appear to meet the need for improved service.

Diversion of G.C.R. section express services *via* Wycombe, and stopping at Princes Risborough to change over from steam to electric haulage, would entail an appreciable increase in journey time and deprive Aylesbury of its through service to the Midlands and North. Similar remarks apply to the G.W.R. Birmingham services, and L.N.E.R. and G.W.R. goods services normally routed *via* Wycombe, which would not be improved by the additional stop at Risborough; any time economised in subsequent running over the electrified section would be nullified thereby.

It is to be hoped that the L.N.E.R. authorities will find it possible to improve the main-line service from Marylebone, which has suffered from the excessive attention paid by main-line expresses to places such as Finmere, Brackley, Woodford, and Lutterworth. This has been to the detriment of traffic from Marylebone to Leicester, Nottingham, and Sheffield, which has flowed more readily to the Midland Division of the L.M.S.R., as only the 3.20 and 4.55 p.m. down and 10.40 a.m. and 6.38 p.m. arrivals were really attractive to passengers from these towns. The example of increased traffic between say, Chicago and St. Paul in America by the provision of lavish facilities by both principal competing routes, may be cited as an argument for the expansion of the Great Central Railway passenger service, which in pre-1939 days, although little advertised, earned a high reputation for reliability and consistent punctuality.

Yours faithfully,

G. W. CARPENTER

Railway Electrification Pros and Cons

"Bankside," Kingsworthy, nr. Winchester,
Hants. September 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have followed with interest correspondence with regard to the above and select for comment the following from Mr. Ashley Brown's contribution in your August 25 issue.

"In the case of suburban traffic, calling for rapid acceleration and an intensive service, the value of electrification is not in dispute."

Where is the line of demarcation in mileage defining suburban traffic and main-line traffic? Any value that may exist, either past or present, I venture to suggest is erroneous with the possibility of the popularity of air travel in the near future. Many of us already envisage the prospects of a journey of 50 miles or somewhat over to and from the home and the factory or office.

Therefore, where a migratory population has to be catered for, the efficiency of electric traction over steam leaves no doubt in the minds of the travellers and it is reasonable to assume that if the railways wish to compete successfully with road transport in such instances, electrification will be the means.

Yours faithfully,

GEORGE KEY

A Protest at Railway Propaganda

Fen Road, Milton,
Cambridge. September 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The Almighty God gave me an average brain and average intelligence with which, I regret to admit, I am unable to understand the letter addressed to you from Mr. G. H. Bartram. The more intelligent of your readers cause me great envy, because theirs is the fullness of complete understanding. My conception of what the letter intends to convey might receive further enlightenment from Mr. G. H. Bartram.

The first point of the letter suggests that the poster, which caused great anger to smite the breast of your correspondent, is superfluous. Perhaps the gentleman hasn't realised that, in spite of this "superfluous" advertisement, thousands of people gave railways extra work with holiday travel. Your correspondent blames the Government for the discomforture of present day travel. What does he expect the Government to do? Operate full peacetime holiday traffic plus war traffic with a guaranteed seat for every passenger?

The next point seems to be a variation on the original "hateful poster" because your correspondent compares *The Railway Magazine* cover designer, or at least arranger, with a gentleman named Sir Joseph Porter. Then follows a little personal criticism of the merits of civil servants and Government officials.

I am afraid, to speak in the American vernacular, "I don't get it"! Is it a case of "much ado about nothing" or am I wrong?

Yours faithfully,

PHILIP SPENCER

Chippenham. September 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was surprised, and rather amused, at some readers taking exception to the cover of the July-August issue of *The Railway Magazine*. For my own part I had already made up my mind to have it bound in my volume 90, as an amusing relic of the times when the railways implored us *not* to travel!

Yours faithfully,

O. S. NOCK

The Scrap Heap

A well-known railway official is fond of telling how, when waiting for a connection at a junction station, he walked into the town and saw in progress a biggish funeral. He asked a passer by who the deceased was, and was told a prominent railwayman had died suddenly.

"What was the complaint?" he queried.

"Oh, no complaint," came the ready answer. "Everyone is *perfectly* satisfied."
—*From "The Best Railway Stories."*

* * *

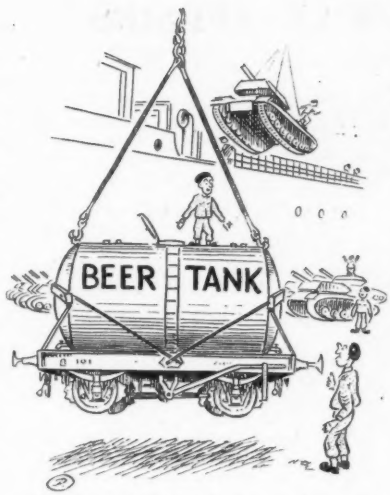
A father and two sons, all of whom are living, can claim combined service on South African railways of 100 years. All three commenced their railway careers at Uitenhage. Mr. J. Spence, senior, retired from the position of Chargeman Boilermaker at Keetmanshoop after 20¾ years' service. Mr. J. Spence, junior, formerly a clerk in the Mechanical Engineer's Office at Pretoria, recently retired after 39¼ years' service. The latter's brother, Mr. W. M. Spence, is Locomotive Foreman at Vryheid, and has had 40 years' railway service. The two first-named each had prior service with the Caledonian Railway in Glasgow. The four daughters who complete the family are married to railwaymen; and three grandsons are railway employees.

* * *

A new set of six posters by "Fougasse" has appeared at all Underground stations. Each deals with a particular form of conduct which London Transport asks railway passengers to observe:—

Please stand on the right of the escalator.
Please pass along the platform.
Please let passengers off the car first.
Please pass down the car.
Please don't smoke in a non-smoking car.
Please have your ticket ready at the barrier.

Further posters with similar messages for road vehicle passengers are being planned.



"It's a mistake alright Sarge, but we're O.K., there's beer in it"

* * *

A characteristic story of the late Lord Claud Hamilton is recalled in "An Ulsterman's Letter" in a recent issue of the *Belfast Newsletter*. It tells how Lord George Hamilton (twice Secretary of State for India) and Lord Claud Hamilton ran a race through the streets of London at ten o'clock at night by way of testing their physical fitness—each of the two brothers was then long past his sixtieth year. It all started with some friendly banter at the dinner table, each professing deep concern at the palpable signs of physical decay which he detected in the other. One hundred yards were paced out in Montagu Street, Portman Square; but the honours went to Lord Claud, who, as Chairman of the Great Eastern Railway, showed the go-ahead spirit for which that line was famous. It was this gentleman who turned out, at the age of seventy-five, as a special constable on the streets of London at the outbreak of the first World War. When a presentation portrait was offered to him, he selected his policeman's uniform, although he was entitled to wear that of a full colonel.

* * *

The International Limited of the Canadian National Railways has been in continuous operation over the C.N.R. double track between Montreal and Chicago since July 1, 1900.

* * *

In 1,825 days of war, 21 million men and women of the Armed Forces have travelled in special trains on the L.M.S.R. In addition, 8 millions travelling in small parties have been accommodated on ordinary trains.

* * *

TAILPIECE

(*A pictorial guide to Euston Station is now on view*)

A little guidance now and then
Is relished by the wisest men,
As lately shown with much success
At Euston by the L.M.S.

Within the concourse people face
A large-scale picture of the place.
You ask "Where am I, which way, where?"
Look in the picture—it is there.

Your bag is heavy, porters few,
You half suspect a ticket queue.
You seek the quickest way to go?
Look in the picture—it will know.

The points for tickets, tea, and beer
Are neatly indicated here,
And every other point as well.
Look in the picture—it will tell.

E. C.

Two of the new "Fougasse" posters displayed at London Underground stations

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

A Short-Lived Train Service

From the inauguration of through train services between Wellington and Gisborne on September 7, 1942, until January 10, 1944, it was possible to make an unbroken through journey only in the northbound direction. When travelling from Gisborne to Wellington it was necessary to stop overnight at an intermediate point *en route*. On January 10, 1944, however, a through service was introduced in the southbound direction also, but this lasted no more than three weeks, as the restricted train services which became necessary from January 31 brought back the "old order" once more. The down train, which had previously left Gisborne at 10.5 a.m., for Palmerston North, where it was due at 9.20 p.m., having served almost all stations, was rescheduled during these three weeks to leave Gisborne at 8.55 a.m. and to arrive Wellington at 10.10 p.m. This journey was thus booked just 10 min. faster than the north bound, which is allowed 13 hr. 25 min. for the 328 miles, and this faster overall booking was despite a considerable number of additional stops made by the new train between Waipukurau and Woodville.

Up and Down Trains

The distinction between up and down trains in New Zealand is based on the simple ruling that all trains travelling towards Auckland, in the North Island, or Lyttelton, in the South Island, are up trains and those travelling in the opposite direction are down trains. Although this is easily defined on main lines, curious positions arise on some branch lines. For instance, on the short branch line from Aramoho Junction to Wanganui, it is possible to find up and down trains travelling in both directions. Trains from Marton to Wanganui are up trains, but so are trains from Wanganui to New Plymouth, and these services travel in opposite directions between Aramoho Junction and Wanganui. Many junctions and terminals are also in a curious position in this respect. Invercargill, for example, at the eastern end, receives down trains from Dunedin and up trains from Tokanui and Bluff, while up trains are also received at the western end from Tuatapere and Lumsden.

INDIA

Anti-Telescoping Buffers

Officials of the G.I.P.R. recently carried out a test with buffers of a new type designed to minimise the risk of telescoping in collisions. The buffers are square in shape and are provided at top and bottom with flanges.

The test consisted in pushing, at a speed of 20 m.p.h., a train of eight unserviceable coaches, fitted with the buffers in question, into a block placed across the line and backed with wagons filled with earth and clamped to the rails. The result was unexpected, but it is claimed that the experiment was successful and justified the work of the inventor of the buffers (Mr. D. Hewitt, Deputy Chief Mechanical Engineer, G.I.P.R.). The coaches, instead of being thrown sideways, ploughed through the block and mounted the wagons beyond; but they did not telescope.

The Senior Government Inspector of Railways, who was present during the test, stated that, although the results were not conclusive, no adverse indications had been noted and further trials would take place. The General Manager of the G.I.P.R. said that experiments had been going on for the last eighteen months with wooden models in an attempt to eliminate telescoping.

CEYLON

Railway Staff Matters

Proposals for increasing the cadre of the railway clerical service and granting a large number of promotions are being considered by the Treasury on the recommendation of the General Manager of the Government Railway. It is proposed to promote nearly fifty members of class II of the service to class I, and about seventy-five members of class III to class II.

The conditions of recruitment and training of probationary assistant district engineers for the Government Railway have been altered, to overcome the difficulties experienced at present in obtaining the services of suitable men for these posts. A two-year course of training in civil engineering on a British or large Indian railway is to be provided at Government expense to young men who are selected as probationary assistant district engineers. This training is to be of a duration and type calculated to satisfy the requirements of the Institution of Civil Engineers. Only those who have passed, or obtained an exemption from, sections A and B of the associate membership examination of the Institution of Civil Engineers are to be selected, and they must be below 28 years of age. A selection board composed of the General Manager of Railways, the Engineer, Way & Works, the Superintendent, Organisation & Staff, and two senior civil engineers in Government service outside the railway, has been appointed to choose the candidates for training.

If the candidate is in Great Britain at the time of the selection, arrangements will be made for his two years' training on a British railway. If the candidate is in Ceylon, he will be called on to serve six months in the office of the Engineer, Way & Works, before it is decided whether he is suited for training. If he is found satisfactory he will be sent either to Great Britain or to India. On their return from abroad candidates are to receive further training for about eighteen months in railway departmental work and in the safe working of trains. On the satisfactory completion of their training and the passing of the examinations specified, they are to hold posts as supernumerary assistant district engineers pending vacancies in the grade of assistant district engineer.

UNITED STATES

Missouri Pacific C.T.C. Economy

The Missouri Pacific System, which claims to have the most extensive centralised traffic control installation in the world, as affecting a single route, has recently conducted an investigation of the advantages obtained, and reckons that average time spent per train in freight movement over the 324½ miles between Poplar Bluff, Missouri, and Texarkana, Texas, is about 5 hr. less than would be possible without the c.t.c. equipment. Southwards from Poplar Bluff there are three independent c.t.c. sections—123 miles from Poplar Bluff to Bald Knob, 122 miles from Benton to Texarkana, and 90 miles of Texas & Pacific metals on from Texarkana to Longview. (The Texas & Pacific is a Missouri Pacific subsidiary). All the foregoing are single-track sections; the gap of 80 miles between Bald Knob and Benton is double track. North of Poplar Bluff there are two routes. The main Missouri Division, used by passenger and fast freight trains, passes through the Ozark Mountains, and has the heavier grades, but freight traffic uses a line 25 miles longer, alongside the Mississippi River between St. Louis and Thebes (120 miles, of which 93 miles is double track, and 27 miles single track, c.t.c. controlled); after a short run from Thebes to Illmo, the single line of the St. Louis South-Western from Illmo to Dexter is used for 47 miles, also c.t.c. controlled, and the only single-track gap not controlled by c.t.c., but less heavily occupied than the others mentioned, is the 25 miles between Dexter and Poplar Bluff. Between the Dupo Yard at St. Louis and Longview, therefore, on the 605-mile route used by the heavy freight traffic, after deducting 140 miles of double track, out of the remaining 465 miles no less than 409 miles are c.t.c. controlled. On the Hoxie sub-division alone, extending from Poplar Bluff to North Little Rock, Arkansas, southbound freight trains have averaged a reduction in travelling time of 3 hr. 32 min., and northbound of 1 hr. 14 min., since c.t.c. was installed. This, in its turn, has effected a daily saving averaging 3·6 locomotives and 188 bogie wagons.

C.T.C. on the St. Louis South-Western

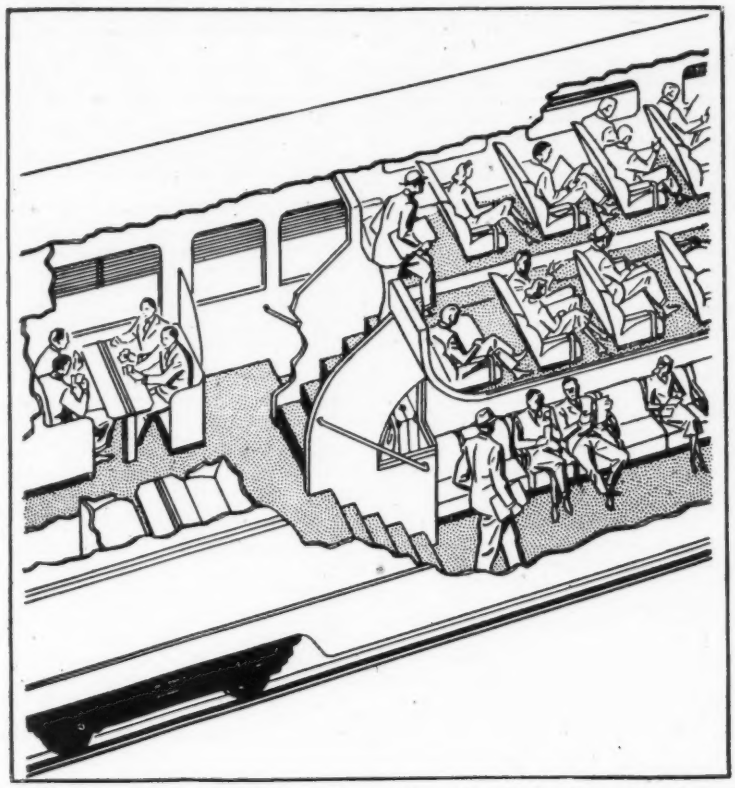
An order has been placed by the St. Louis South-Western Railway Lines with the Union Switch & Signal Company for the material required to equip 84 miles of single-track main line between Fordyce and Lewisville, Arkansas, with centralised traffic control. The control machine, of the Style "C" code type, is to be located at Pine Bluff, Arkansas, exactly in the centre of the section concerned. Electric switch-locks will be used, with telephones, and searchlight signals. Installation will be by the railway company's own forces.

Micro-Wave Communication on the Rock Island

The first American railway to install a radio station using micro-wave frequencies and frequency modulation is the Chicago, Rock Island & Pacific. This is located in the Burr Oak yards at Blue Island, and is used to give communication between the two yardmasters' offices and the crews on shunting locomotives in the yard, which handle daily more than 3,000 wagons in making up trains. The master control station, through which messages are relayed, is in the centre of the yard at the base of 90 ft. light tower, on which the antennæ are mounted. Loudspeakers and telephones are installed in both the outgoing and incoming yardmasters' offices, and are connected to the master control station by conventional telephone circuits. Two diesel shunting locomotives have been equipped with transmitting and receiving units in the 30-40 megacycle band of frequencies; the loud-speaker and telephone are located in the cab immediately in front of the driver's position, and the transmitting and receiving units are on the floor behind the driver's seat. The communication system, which uses the frequency-modulation principle to eliminate noise and interference, has a range of 30 miles. The Rock Island plans further reearch in communication between the front and rear ends of trains and between dispatchers and trains, and also in the development of electronic safety devices, and has set up an electronic research laboratory for this purpose.

Three-Deck Coach Designed by Pullman-Standard

Seating provided for 112 *season-ticket holders*



A THREE-DECK streamline coach, called the Threedex, which will seat 112 passengers, has been designed by the Pullman-Standard Car Manufacturing Company, U.S.A., for post-war manufacture. Although the coach is designed primarily for season-ticket holders' service, the arrangement of the interior can be changed so as to adapt the vehicle for long-distance travel.

Four side entrances to the car, one on each side at each end, are provided on the middle level. Each end contains two game or card rooms with seats for four persons each. From this middle level, which is at the same height as present coach floors, two side stairways lead to the lower deck and one central stairway leads to the top deck. The lower deck is about five steps below, and the upper five steps above, the middle deck; the height of the car is about 13¼ ft. The lowest level contains two rows of 22 outward-facing seats placed back to back, with aisles on each side of the car. Wide windows are incorporated in the design, and general artificial illumination is supplemented with special focused lighting at the reading level in each seat.

Mr. Ellis W. Test, Assistant to the President in Charge of Engineering & Research, is reported in a recent issue of our American contemporary, the *Railway Age*, as saying "This basic design is by no means inflexible. Already we have plans for a dozen variations to conform with the requirements of every railroad. We are also working on a modified version for long-distance travel. At a sacrifice of some capacity, this transcontinental model will offer much more individual comfort, including reclining seats for sleeping. It is a soundly designed, practical railway car which we are prepared to build as soon as war conditions permit the release of material by the War Production Board."

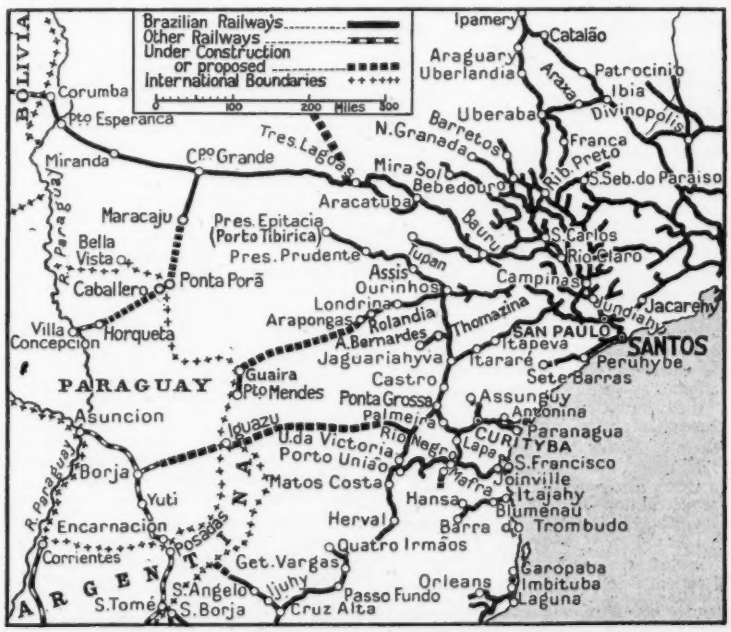
A general impression of the arrangement of the three-deck carriage is given in the accompanying illustration. Multi-deck vehicles for railway use have been put into service on a number of lines in the past, in various overseas countries, and some reference to these is made this week in an editorial note on page 250.

Brazil-Paraguay Railway Links

IT appears that considerable attention is being paid by the Brazilian Government to the construction of railway links between Brazil and Paraguay. The most northerly is that branching from the North-Western Railway at Campo Grande, which is to extend to Villa Concepcion in Paraguay, through Ponta Porã and Caballero. The 96-mile section between Campo Grande and Maracaju is said to have been inaugurated on April 25 last.

According to a Reuters message from Rio de Janeiro, Chancellor Oswaldo Aranha (representing Brazil) and Ambassador Juan Bautista Ayala (representing Paraguay) signed an agreement on August 11 whereby Paraguay grants to the North-Western Railway of Brazil the right to build a railway on Paraguayan soil to the river port of Villa Concepcion.

Extension of the recently-nationalised San Paulo-Parana Railway of Brazil to the Paraguayan border is provided for by a Brazilian regulation which requires the incorporation of this line in the Rede de Viacão Parana-Santa Catarina. The railway will be extended to the frontier at the port of Guaira on the left bank of the Parana River, and will join up there with the existing railway to Porto Mendes. The Brazilian Minister of Transport & Public Works is reported to have appointed a commission composed of representatives from the Rede de Viacão Parana-Santa Catarina, one from the Departmento Nacional de Estradas de Ferro, and one from the Companhia Ferroviaria San Paulo-Parana to effect the consolidation.



Brazil-Paraguay railway links under construction or proposed

Railway Civil Engineering Accounts*

The basis and uses of Abstract "A"

THE manner in which accounts shall be kept by the various railways is prescribed by the Railway Accounts & Returns Act, which also lays down how certain statistical information—such as mileage run, rolling stock in use, mileage open, and materials used — shall be recorded, submitted to the Government, and published for general information. Briefly, the main divisions of a railway company's chargeable expenses account, as published, are as follow:—

Account or Abstract "A", Way & Works; "B", Rolling Stock; "C", Cost of Train Working; "D", Transport or Traffic Expenses; "E", General Charges; "G", Running Powers; "H", Demurrage & Wagon Hire; "J", Joint Lines; "K", Law & Parliamentary Expenses. There are also other abstracts such as Rating Expenses, Miscellaneous Working Expenses, Road Transport, Steamboats, Canals, and Docks, Harbours & Wharves.

The main concern of this paper is Abstract "A." This abstract covers most, but not all, of the functions usually allotted to the Civil Engineer. It is around the framework of Abstract "A" that the civil engineering accounts of the main railways in the United Kingdom have been built up. This has been copied to a large extent on the Continent and in the dominions and colonies.

All those who are familiar with Abstract "A" by utilising it in the making out of time sheets, charging out material accounts, etc., will have realised that the abstract is based on historical rather than on geographical principles, although the work of the department runs along the latter rather than the former lines. This historical basis can be seen by examination of the abstract and realising that it follows the actual constructional progress of the railway and its layout. This is emphasised by the table below, which shows the six main and various subsidiary headings of the abstract.

Main heading	Subsidiary heading
(1) Superintendence	Salaries of Engineer's staff, office expenses, printing and stationery, furniture and technical equipment.
(2) Roads, bridges, and works	Earthworks, bridges, tunnels, culverts, retaining walls, water troughs, line drainage, roads, fences and gates.
(3) Permanent way	Maintenance, complete and partial renewals of running lines and sidings, including ballasting.
(4) Signals and telegraphs	Signal cabins, signals, signal connections, electrical signal appliances, power signalling, wires and cables, block, telegraph, and telephone instruments.
(5) Electric track equipment	Conductor rails, overhead equipment, cables, and section switches.
(6) Stations and buildings	Passenger and goods station buildings, offices, gas and water mains, engine sheds, carriage sheds, loco. workshops, carriage and wagon workshops, other buildings.

The historical sequence can be traced in these six divisions of the abstract as follow:—

(1) *Superintendence*

The grouping follows the original planning of the railway, namely, preliminary survey, negotiations for land purchase or acquisition, preparation of plans, parliamentary application, and supervision and direction during the construction processes.

(2) *Roads, bridges, and works*

A definite historical grouping, as all these items are generally provided during the construction of the railway before track laying on a permanent basis can be carried out.

(3) *Permanent way*

Historically following the previous construction process, comes the laying of the track itself.

(4) *Signals & telegraphs*

Items which for safety reasons closely followed the earliest operation of railways on the track provided.

(5) *Electric track*

A newer and more recent addition to the abstract following the train of modern scientific and technical development.

(6) *Stations & buildings*

Items which, of necessity, followed the main construction of the track and its safe operation or where, in the process of time, buildings have become necessary as a supplement to the main activities of the concern.

Most permanent way and works staff become familiar with this abstract at an early stage in their railway career by the fact that they have to enter details of charges to this abstract in their own personal timesheets or become familiar with it in the appropriation of expenditure if engaged in an engineer's office. To men working on the track, the chief headings with which they come into contact are naturally those chargeable to actual track maintenance, or such items as earthworks, drainage, and fencing. Generally, therefore, the classification number of each is well known and can be quoted without further inquiry or explanation. An analysis of recent figures charged to the abstract shows that the totals charged to the main maintenance headings in the year 1938 were as given below:—

	L.M.S.R. £	L.N.E.R. £	G.W.R. £	S.R. £
Superintendence	26·75	19·00	22·26	35·15
Roads, bridges, and works	45·53	45·14	42·37	89·72
Permanent way renewals	89·04	59·00	73·37	121·87
Permanent way maintenance	151·88	162·36	140·29	233·57
Signalling	37·47	40·82	33·47	85·94
Telegraphs	10·31	11·00	9·59	18·95
Electric track	1·83	0·66	0·18	16·41
Stations and buildings	64·71	53·77	59·93	160·55

Permanent Way & Works staff are also engaged on work connected with other departmental abstracts, chief of which are:—

1. *Traffic expenses—Abstract "D"*: Fogging, including repairs to fog huts, also level crossing and relief gatemen, repairs to station equipment, maintenance of traffic machinery and station lighting, excluding mains.

2. *Locomotive running expenses*: Loading engine ashes, lighting of running sheds and maintenance of shed equipment, but not structures.

3. *Work for ancillary businesses*: namely, hotels, refreshment rooms, the advertising department, steamship expenses, docks, harbours and wharves.

4. *Special works of a capital or special revenue kind covered by board minute.*

5. *Renewal fund expenses.*

6. *Special schemes sanctioned as a result of Government legislation.*

7. *Personal accounts*: such as cases where railway staff carry out work for which private parties are liable for whole or part of the cost incurred.

Care has to be exercised to ensure that charges for labour and materials are correctly made to each of these special headings, so that the civil engineering account is not incorrectly debited with the cost of work. Most accounts instructions give full details of such charges.

Stores and Material Accounts

No paper dealing with engineering accounts is complete without due reference to the manner in which materials used and recovered from works have to be accounted for. Stores may be divided into two classes, (1) directly chargeable stores, and (2) materials charged to and from departmental stocks.

Under heading (1) may be classed all consumable stores indented for and charged direct to an expenditure heading, and often referred to as "bought out of stores." The usual procedure is for a direct request or indent to be passed into the district stores depot and for the article to be supplied immediately from a district stores stock. The requisitions in this class are generally submitted in triplicate, one copy being retained by the storekeeper and two priced copies sent to the District Office. Weekly or monthly summaries are sent forward to headquarters accounts office, these being generally summarised into district totals for each classification or special works order heading.

Heading No. 2 includes special permanent way material purchased in bulk under departmental supervision which, on arrival, is taken charge of by the department and, whenever used, is charged off the special suspense account to which the material has been debited on delivery. The same account may include serviceable or scrap materials subsequently disposed of by being re-used or sold. It is generally left to gangers, inspectors and others to render to the district office periodical statements showing how materials taken from or brought into such stocks are accounted for. Either in the district office or a central accounts office ledger balances and priced accounts are kept, so that the various abstracts or special accounts are debited with materials "used" or "produced" (taken out). Periodical stocktaking takes place, so that the interim balances on the books of the company can be verified. Care is necessary to ensure that all material used or taken up is properly accounted for. If it is realised that stock represents a definite cash value in the company's books, the need for making correct entries in stock sheets and returns will be fully appreciated. In other words "stock is money."

Sundry Charges

As well as wages and materials, there are other items which the abstract must bear. These include engine power supplied, ballast guards' wages, and charges for assistance rendered by other departments such as vehicle repairs, C.M.E. plant repairs, traffic assistance during

* Abstract of the paper with this title read to various sections of the Permanent Way Institution in November and December, 1943, by Mr. Frank Lawson, Honorary Treasurer of the Institution

engineering operations, cartage, and electric light and power costs. The main methods adopted are for the departments to render monthly accounts. The Chief Accountant receives certified statements for such items, and adjusts the debits or credits between departmental abstracts.

Other Functions of Abstract "A"

So far only, the methods concerning what might be termed day-to-day maintenance have been dealt with, but the department has also to render accounts relating to track renewals and special revenue works. To explain briefly the method adopted in connection with the renewal of track, it may be mentioned that the general policy adopted is to establish what is known as a track renewal fund, on such a basis as will enable that fund to be drawn on, so as to cover, financially, a definite track mileage renewal programme each year. This is necessary to allow either more or less complete renewal, and an adequate amount of partial renewal, such as re-railing, and re-sleepering, to be undertaken in any particular year in conformity with track wear. This can best be explained if one imagines a particular stretch of track with an estimated life of, say, 20 years for rails, but only ten years for sleepers and fastenings. Assuming that this section were relaid completely with new materials in 1920, it would require re-sleepering in 1930 and relaying throughout in 1940. There would be allotted to the renewal of way fund annually such an amount as would enable sufficient money to be drawn from the fund when each of the two operations became due as would enable the cost to be met. In other words, the light years pay for the heavy ones. The aim of each Chief Engineer is to maintain this account on sound lines so that no call is made on the fund until each section has reached its expected life.

Special revenue works include works of a betterment character, sanctioned either by a chief officer, when these come within the financial powers delegated to him, or by the board of directors. It is usual for these items to be charged to a special works order, and for the expenditure incurred to be kept separate from ordinary district or divisional charges. The Accountant allocates the cost of these works as necessary between ordinary maintenance charges to Abstract "A", renewal funds or such special financial accounts as may exist. In such cases the department responsible for the inception and/or submission of the scheme usually submits an application to headquarters for the necessary grant, and accompanies this with plans and estimates. The estimates are generally supported by figures showing the following information:—

(1) Repairs or renewals necessary at the time the scheme is submitted.

(2) Estimated annual costs divided between (a) maintenance and (b) funded renewal.

(3) Expected life of new facility.

(4) Amount of capital to be written off or displaced.

These and other details, as required, are considered specially, so as to determine the economic soundness of the proposal, and also to allow the expenditure, when incurred, to be divided properly between capital and revenue accounts.

Personal Accounts

No paper on engineering accounts would be complete without reference to personal accounts, or accounts which ultimately are repaid to the railway company by a private firm or individual. It is customary for special orders to be issued to cover such work, and it should be the main concern of those responsible for the issue of such orders to ensure that these are sent out well ahead of the date the work is to begin, and for those who carry out the work to ensure that all labour and materials are charged correctly to the special personal order. Sound advice is that it is better to give a double check on all materials as used, and so ensure that on completion of the work all proper credits are given. A little extra care in checking during the progress of the work, when details are fresh in the minds of those responsible for the job, saves considerable inquiry and worry afterwards, when the job has to be measured up and certified as complete. The same applies to work on Joint Lines and in the case of maintenance of private sidings where, by agreement, the whole or part of the cost involved may be borne by an outside firm or even a third party. Some sidings differ greatly as to terms of tenure, and gangers and others should always be encouraged to make full use of their notebooks whenever engaged on personal and private siding work.

Rationed Maintenance Expenditure

It has become general practice for an annual amount of expenditure to be allotted to an engineering district or division to cover the expected expenditure to Abstract "A" for that particular district or division.

The allotment of such an amount is governed by the average amount of money required to cover ordinary maintenance charges, plus a sum necessary to meet additional expenditure on what are known as "Important Maintenance Works"—or works of larger extent than those which occur on day to day maintenance—in any particular year. These items include reconditioning and partial renewal of structures and such other special items as heavy expenditure on slip remedial measures, heavy steelwork and bridge repair work, bridge painting, stations painting and repairs previous to painting.

At times when stringent economy becomes the order of the day, it is essential to watch the expenditure as or even before it is incurred, so as to insure that the allotted amount of the ration is not likely to be exceeded. This is not always easy, particularly as some accounts rendered monthly do not reach district offices for checking and appropriation until the elapse of two or three weeks after the accounts period has closed. Although the main charges may have been watched and the district officer considers that he is well within his ration, a heavy item occurring in these delayed accounts may tend to throw his calculation out. One way in which such expenditure may be watched and checked is to divide the year into sections comparable with each accounts period and each account to be received as follows:—

Assume an annual ration of £250,000 for a district.

Assume 52 weeks for wages and stores and 13 x 4 weekly periods for the remaining accounts and anticipate expenditure as follows to make up an equivalent amount:—

	£
Wages, 52 weeks at £3,230	167,960
Stores, 52 weeks at £750	39,000
P.W. materials, 13 periods at £1,100	14,300
Engine power, 13 periods at £300	3,900
Trades accounts, 13 periods at £1,200	15,600
Special debits and sundries, 13 periods at £700	9,100
Total	£249,860

As each account is received and dealt with, it is advisable to plot on a graph the differences between the actual and estimated figure straightaway without waiting for monthly totals to be compiled. By keeping the graph posted day by day work can be scheduled during a current month so as to keep over-spending in partial check.

An additional check is to plot on the same graph the number of men employed on weekend overtime and watch the effect of this on the rationed amount allocated to wages. When the position approaching the year end shows that the amount available is likely to be less than normally required, reference to the two graphs can give good indication as to the number of men whom it can economically be safe to employ at weekends to keep within the limits of the ration. In the writer's experience, this weekend overtime generally has been the factor which determines the state of the expenditure and, although this method may be open to some criticism, it is undoubtedly a good guide to a district officer as to the state of his "budget," particularly when financial stringency is being stressed by Headquarters, as both the weekly and monthly items are kept under current review.

SCOTTISH MACHINE TOOL CORPORATION LIMITED.—Sir. Harry Greer, speaking at the annual general meeting recently, said that the directors had the question of post-war planning in industry very much in mind, and they were determined to take all possible steps to ensure that the corporation would be in a position to supply post-war needs, both at home and abroad.

B.B.C. BROADCAST IN COLLABORATION WITH L.N.E.R.—On September 19, in the B.B.C. Home Service between 5.30 p.m. and 6 p.m. (ehildren's hour), a broadcast entitled "I Want to be an Engine Driver" will be given. The story deals with a boy's first day on the L.N.E.R. as an engine cleaner at Gateshead, and is based on the experiences of members of the company's staff in the Newcastle area. The broadcast has been arranged with the assistance of the Press Relations Office, L.N.E.R., and technical advice has been given by departments of that railway concerned.

DEOXIDISED AND ARSENICAL COPPERS.—When the British Standard specifications for raw copper (B.S. 1035-1040) were published in 1942, it was not possible to include specifications for deoxidised copper and arsenical coppers, as research work was in hand to determine the permissible limits for certain of the impurities, particularly selenium and tellurium. As a result of that research work the specifications have been completed, and have been issued as B.S. 1172-4; copies may be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s.

TRANSPORT IN BRITISH GUIANA.—An article in our August 4 issue (page 112) directed attention to the sparse railway facilities in British Guiana, the only British possession on the South American Continent. A recent addition to the transport facilities of the colony is provided by the establishment, by British Guiana Airways Limited, of a regular air service to the Mazaruni and Rupununi districts of the interior. A fortnightly service is being maintained to Tumereng, 170 miles up the Mazaruni River, and a four-weekly service to the Rupununi district, with Bon Success as the terminus in favourable river conditions, and Jauari as the landing point in other circumstances.

Important Pennsylvania Railroad Improvements

Construction of new lines, double tracking, and signalling improvements, to expedite war traffic

AMONG many noteworthy achievements in wartime railway construction in the U.S.A. to facilitate handling heavy war traffics, an outstanding place is occupied by the $20,000,000 programme of the Pennsylvania Railroad to improve its St. Louis—Indianapolis—Columbus line. The major part of the work was completed by the end of 1943, and the balance should be finished during the current year.

Since 1939 traffic has increased enormously on the St. Louis, Indianapolis, and Columbus divisions, totalling 420 miles, or two-fifths of the distance between St. Louis and New York. In 1939, the last year that traffic was not materially affected by war movements, 2,725,163,000 gross-ton-miles of freight were handled between St. Louis and Indianapolis, whereas in 1942 the figure increased nearly 2½ times to 6,556,560,000. Between Indianapolis and New Paris the goods traffic was more than doubled in the same period. This line also carries a large volume of passenger traffic, now augmented considerably by military movements. Excluding light engines and engineer's trains, a recent day's movements comprised 26 passenger and 28 goods trains between St. Louis and Terre Haute; 26 passenger and 29 goods trains between Terre Haute and Indianapolis; and 31 passenger and 39 goods trains between Indianapolis and New Paris.

As may be seen from the accompanying sketch map, much of the line between St. Louis and New Paris was single track (actually, about 42 per cent.) with six sections of double track varying from 4½ miles to 54 miles in length. East of New Paris, to Columbus, traffic has the advantage of two routes, one used primarily for goods traffic, and the other primarily for passenger traffic. Early in 1942, before the U.S.A. was at war, the Pennsylvania Railroad undertook the comprehensive programme of improvements, to increase line capacity, of which the following are the main features:—

(1) 16 miles of double-tracking between Marty and Smithboro, of which 8 miles is new second track, and 7 miles new double-track construction on a fresh alignment. The latter eases gradients and curvature, and reduces the route length by one mile; it was brought into service on November 2, 1943. Grading occupied one year, from September, 1942, and rail laying was begun on June 16, 1943, from each end. The track is laid with 39-ft. controlled-cooled 131-lb. rails, laid on 24 sleepers to the 39-ft. length.

(2) 9 miles of double-tracking west of Henry, reducing to 7 miles the single track between Indianapolis and New Paris. This was brought into use on December 8, 1943. As many as 80 trains a day were handled over the single line while the work was in progress.

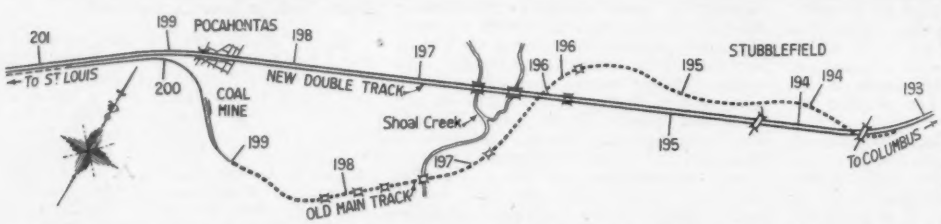
(3) Provision of new passing sidings, and lengthening many existing ones to accommodate 150 vehicles.

(4) Installation of C.T.C. operation over the 21 miles of single line between Smithboro and Hunter.

(5) Equipment with reverse signalling, for either-direction working, of the 4½-mile double-line section between Almeda and Limedale.

Further traffic increases of some 15 per cent. are expected during the current year, and the new works have been expedited to enable this to be handled efficiently. The line has automatic block signals throughout, and the authorised maximum speeds are 70 m.p.h. for passenger trains, and 50 m.p.h. for goods trains.

Above: St. Louis—New Paris section as now improved



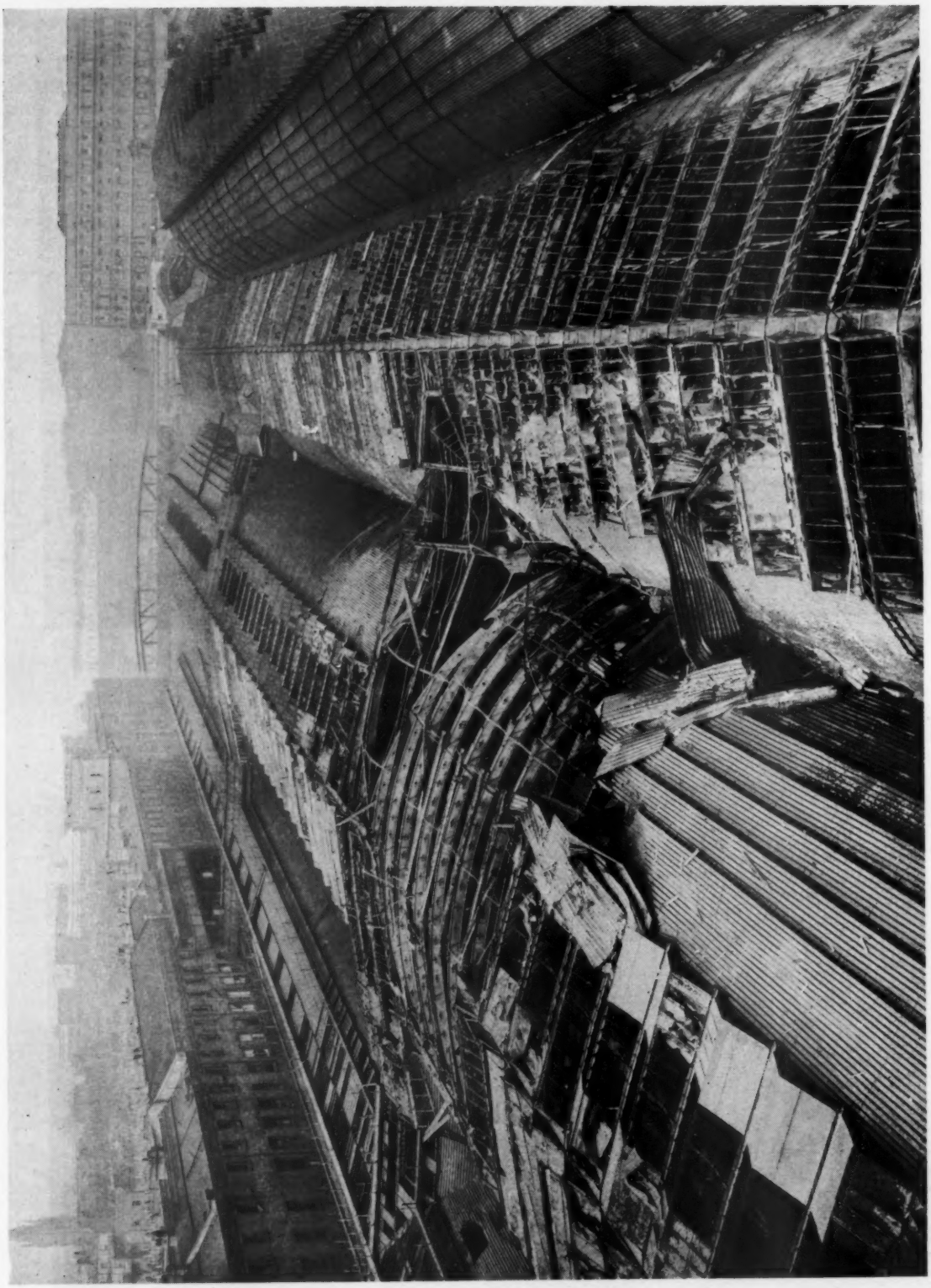
Left: New double-track alignment for 7 miles at Pocahontas

Italian prisoners on permanent way work at Hull (Dairycoates) in July last. It will be noticed that a portion of the siding on which they are rail-laying is laid with concrete sleeper blocks linked by tie-bars. These men work under the supervision of British N.C.Os. and the L.N.E.R. Civil Engineering staff

Bomb Damage at Paddington, G.W.R.

Effect of a small bomb which penetrated the roof of Paddington Station, G.W.R., last March and exploded on platforms 6 and 7

The scene about 11 a.m. the next morning, with the debris cleared and the lines restored



Roof damage to Paddington Station, G.W.R., during an air raid in March last

RAILWAY NEWS SECTION

PERSONAL

The Minister of War Transport has appointed Major-General C. W. Macleod, C.B., C.M.G., D.S.O., as Regional Transport Commissioner, North Western Region, in succession to the late Sir William Chamberlain. General Macleod has served in the Army for a considerable period, and was Director of Supplies & Transport until his retirement in 1937. For some time he was employed by the Ministry of Supply as a Civilian Production Officer, but later was re-appointed to the War Office, as Deputy-Director of Supplies & Transport, which position he now vacates.

Mr. C. E. Rooke, C.M.G., M.Inst.T., late General Manager, Nigerian Railway, and recently engaged with the Allied Technical Advisory Committee on European Inland Transport, has been appointed by the Secretary of State for the Colonies to conduct an inquiry and advise on railway and road transport rates and charges, and road transport organisation and development generally, in Nyasaland.

Mr. C. A. Hadcock has been appointed General Manager of the Buenos Ayres Midland Railway in succession to Mr. H. N. Anderson, who recently was appointed Acting General Manager of the Buenos Ayres Great Southern Railway and Buenos Ayres Western Railway.

At the annual meeting of the Dry Dock Owners' & Repairers' Central Council, Mr. Hubert Thompson, a Director of Vickers-Armstrongs Limited and Deputy General Manager of the company's Barrow Works, was elected Chairman for 1944-45. The Council elected Mr. John Carson, Manager of Harland & Wolff Limited, Liverpool, as Senior Vice-Chairman.

The late Lt.-Colonel George Huddleston, formerly General Traffic Manager, East Indian Railway, and afterwards a Director of the Assam-Bengal Railway Co. Ltd. (sometime Managing Director) and H.E.H. the Nizam's Guaranteed State Railways Co. Ltd. (sometime Chairman), left £48,599.

Due to illness, from which he is making a good recovery, Mr. E. W. Johnston, Joint Honorary Secretary to the Diesel Engine Users Association, is resigning that position. He is an Honorary Member and Past-President of the Association. Mr. Johnston is succeeded as Secretary by Mr. Hamish Ferguson.

We regret to record the death at Mount Vernon, New York, in his 94th year, of Mr. Braman B. Adams, who had held various railway positions and in 1887 became Associate Editor of the *Railroad Gazette* of the U.S.A., of the successor of which, the *Railway Age*, he eventually became Senior Associate Editor; he retired from that position at the end of 1936. He was led to specialise in operating problems and to write extensively on signalling and appliances for promoting safe railway working. He became a well-known authority on those subjects in American journalism, and was the author of a standard work on the block system and the apparatus used in America to give effect to its principles. He acted for a short time as Secretary of the Railway Signal Association—now the Signal Section of the Association of American Railroads—and with Mr. Rodney Hitt produced in 1908 the first edition of the "Railroad Signal Dictionary." In the previous year he had been appointed to sit on the Block Signal & Train Control Board of the Interstate Commerce Commission, on which he served until its dissolution in 1912; he was largely responsible for drawing up its reports. When the journal, *Signal Engineer*, now known as *Railway Signaling*, which had been founded a few years before by McKenzie & Klink, was absorbed by the *Railway Age*, Mr. Adams became an Associate Editor also of that publication, and contributed to it for over 25 years (*see editorial note, page* 251).

SOUTH AFRICAN RAILWAYS & HARBOURS

Mr. P. J. Louw, System Manager, Bloemfontein, has been appointed Assistant Chief Civil Engineer, in succession to Mr. E. X. Brain, who has retired.

Mr. J. P. Laurens, Administrative Secretary to the Minister of Transport, Pretoria, has been appointed Chief Superintendent (Parliamentary).

Mr. L. J. E. Drake, Assistant Superintendent (Operating), Durban, has been appointed Superintendent (Operating), Kimberley.

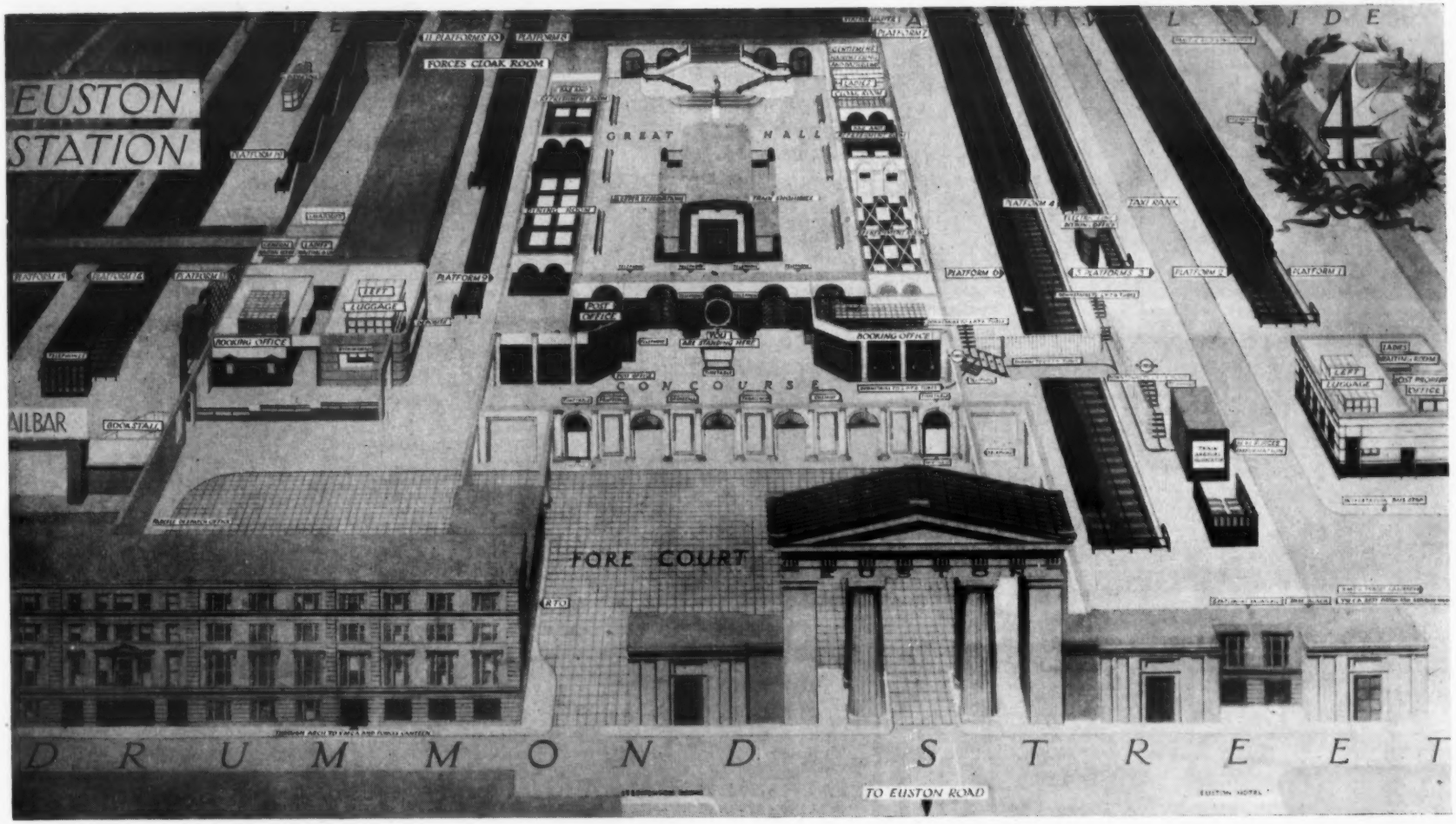
Mr. H. J. G. Seeliger, District Engineer, Queenstown, has been appointed System Engineer, Bloemfontein.

British—U.S.A. Railway Photographic Exhibition

At the British—U.S.A. Railway Photographic Exhibition opened at the Grosvenor Hotel, London, on September 1

From left to right are Messrs. H. E. O. Wheeler, Deputy Traffic Manager, Southern Railway; George Dow, Press Relations Officer, L.N.E.R.; G. H. Loftus Allen, Advertising & Publicity Officer, L.M.S.R.; K. R. Ellson, Public Relations Assistant, Southern Railway; Colonel Norman A. Ryan, Assistant Chief of Transportation, U.S.A. Army (E.T.O.), who opened the exhibition; Major J. Dewar, Publicity Officer, G.W.R.; Messrs. H. T. Carr, Acting Publicity Officer, L.P.T.B.; C. E. R. Sherrington, Secretary, Railway Research Service; and G. R. Walter, Advertising Assistant, Southern Railway.

A Pictorial Plan of Euston Station, L.M.S.R.



Above is shown a reproduction of a large oblique picture plan giving the general arrangement of the public parts of Euston Station, L.M.S.R. The original is exhibited between the doors of the Great Hall, and has proved of considerable attraction to travellers using the terminus, as it enables them speedily to locate the various offices, bookstalls, cloakrooms, and so forth. Consideration is being given to the exhibition of similar plans at certain large provincial stations on the L.M.S.R.

TRANSPORT SERVICES AND THE WAR—259

The Winter Timetables

With the introduction of the new main-line railway timetables on October 2, it is expected that nearly all the trains which were cancelled in connection with "D" Day invasion traffic will be restored. Shortage of manpower remains a limiting factor.

Restoration of Train Services

The majority of the long-distance trains listed in *The Railway Gazette* issue of August 18 as having been withdrawn, are running regularly once again. On the London & North Eastern Railway, for example, this includes the 12.45 p.m. from Kings Cross to Edinburgh, the 1.10 p.m. to Leeds and Bradford, 3.50 p.m. to Newcastle, 4 p.m. to Leeds and Bradford, and 10.15 a.m. relief to Leeds and Bradford in place of the 9 a.m. down, and the extension of the 9.40 a.m. to Newcastle as far as Edinburgh, with the corresponding up services, notably the 10 a.m. from Edinburgh to Kings Cross. The Midland Division of the L.M.S.R. has restored the 9.5 a.m. from St. Pancras to Sheffield and the 1.30 p.m. to Manchester. It will be recalled that, by instructions from the Ministry of War Transport, wholesale cancellations of long-distance trains took place immediately after the publication of the summer timetables of the main-line railways and the posting of the station time-sheets on May 22, and that at first no printed announcements were permitted of the trains that had been withdrawn. About two months later the railways were allowed to issue printed lists of the cancelled trains, but, as soon as these became available, the Ministry of War Transport restrictions were relaxed, because of the gross overcrowding of the remaining trains, and the extensive restorations of service referred to above took place. Editorial comment on the situation appears on page 252.

TRAIN ALTERATIONS.

Time	No. of Platform	Destination
7. 5 a.m.	1	Will NOT connect at Slough for Burnham and Taplow.
9. 5 a.m.	—	CANCELLED.—Passengers for Gloucester Line travel by 9.15 a.m. from Platform No. 2.
9.10 a.m.	3	Will also call at Bicester.
9.15 a.m.	2	Maidenhead, Reading (for Basingstoke), Didcot (for stations to Oxford and Shrivenham), Swindon (for Gloucester Line), Chippenham (for Westbury and Weymouth Line), Bath Spa (for Newport and Cardiff), Bristol and Stations to Taunton.
9.32 a.m.	—	CANCELLED.
9.45 a.m.	1	Will NOT connect at Reading for Stations to Cholsey.
10. 3 a.m.	—	CANCELLED.
10.30 a.m.	2	Will also call at Taunton, Exeter and Newton Abbot.
10.40 a.m.	—	CANCELLED.
10.45 a.m.	—	CANCELLED.
11.15 a.m.	3	Bath Spa, Bristol, Weston-super-Mare, Highbridge, Bridgwater and Taunton.
11.55 a.m.	—	CANCELLED.
12.10 p.m.	—	CANCELLED.
12.30 p.m.	—	CANCELLED.—Passengers for Westbury and Weymouth Line travel by 1.15 p.m. via Chippenham.
1.15 p.m.	3	Reading, Swindon, Chippenham (for Trowbridge and Weymouth Line), Bath Spa, Bristol (for Stations to Weston-super-Mare), Taunton (for Barnstaple and Minehead), Exeter, Dawlish, Teignmouth, Newton Abbot, Torre, Torquay, Paignton, Churston, Kingswear, Totnes, Brent (for Kingsbridge), Plymouth and principal Stations to Penzance.
1.30 p.m.	—	CANCELLED.—Passengers travel by 1.15 p.m. from Platform No. 3.
1.45 p.m.	1	Will NOT connect at Reading for Stations to Shrivenham.
1.55 p.m.	—	All passengers for this service travel by train departing from Platform No. 2.
3.12 p.m.	—	CANCELLED. Passengers travel by 3.15 p.m.
3.52 p.m.	4	All Stations to Slough (except Staines). Connects at Ealing for Greenford and Stations to Denham.
3.55 p.m.	—	CANCELLED.
4. 5 p.m.	—	CANCELLED.
4.15 p.m.	—	All passengers for this service travel by train departing from Platform No. 2
4.40 p.m.	2	Reading (for Stations to Hungerford), Tilehurst, Pangborne, Goring, Cholsey and Didcot.
4.45 p.m.	3	Will NOT convey passengers for Reading (See 4.40 p.m.)
4.50 p.m.	4	Will also call at West Drayton.
4.55 p.m.	—	CANCELLED.
5.15 p.m.	—	CANCELLED. Twyford and Henley-on-Thames passengers travel by 5.12 p.m. and Maidenhead passengers by 5.18 p.m.
5.55 p.m.	3	Swindon, Badminton, Newport, Cardiff and South Wales.
6. 5 p.m.	1	Reading (for Stations to Cholsey, Newbury and Basingstoke), Didcot, Oxford, Worcester Line and Malvern.
7.50 p.m.	1	Slough and Stations to Didcot. Connects at Slough for Windsor & Eton, at Twyford for Henley-on-Thames and at Cholsey & Moulsford for Wallingford.
9.50 p.m.	1	Will also call at Teignmouth.

BY ORDER

Typical daily bulletin of passenger train cancellations at London terminal stations. This example relates to Paddington, G.W.R., on Friday, May 26

London Buses in the Provinces

More than 150 London buses are still on loan to various provincial towns. The furthest north appear to be in Glasgow, the furthest west Merthyr Tydfil, and the furthest south Bournemouth.

L.M.S.R. War Specials

During the five years of war, the L.M.S.R. has run no fewer than 139,034 special trains for Government requirements. These comprise 71,708 personnel trains, 35,812 stores trains, 21,164 petrol trains, 1,653 Forces mail trains, and 8,697 ammunition trains.

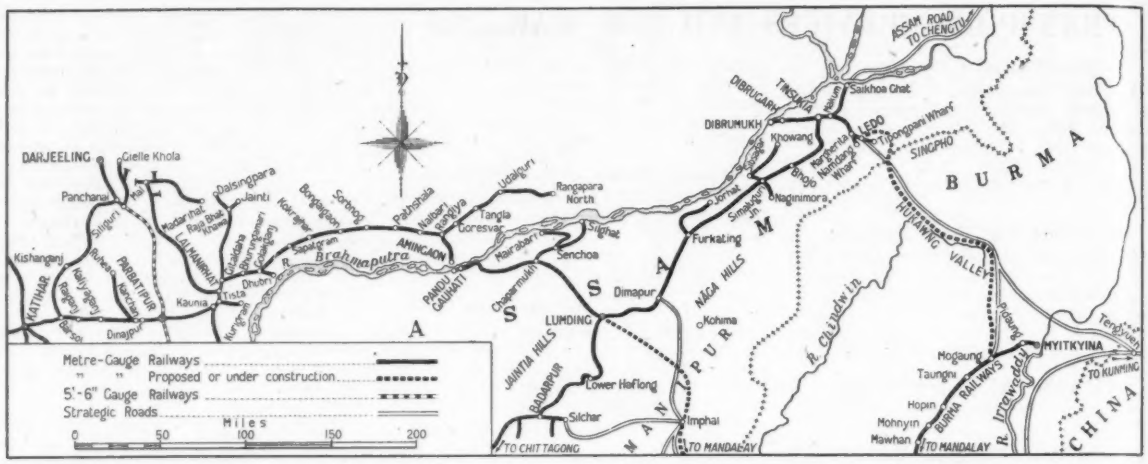
The R.T.O.

To cope with the vast volume of military traffic, the R.T.O. (Railway Traffic Officer) has proved an essential link between the Services and the railway companies since the beginning of the war. At first the personnel was entirely British, supplied by Movement Control, but subsequently the Dominions have participated in the work, as large numbers of Dominion (principally Canadian) troops have been stationed for lengthy periods in this country, and, since the U.S.A. entered the war, American R.T.Os. of the U.S. Transportation Corps have been added to the staff. R.T.Os. are situated at all important stations throughout the country to deal with entrainment and detrainment of personnel, loading and unloading of unit luggage and stores, reservation of accommodation in ordinary trains and supervision of special military trains, provision of refreshment facilities, and many other duties requiring both a high degree of military knowledge and also railway operating experience. They are concerned not only with the movement of troops, but also with the dispatch from ports, factories, and depots of war materials which have to be transported by rail. At some depots there are special R.T.Os. whose sole business it is to see that the stores required by the Armed Forces are dispatched in the desired order and without delay.

Despite using approximately the same language as ourselves, American R.T.Os. could not have adapted themselves to British conditions without guidance, and, for this reason, personnel of the U.S. Transportation Corps were attached in the first instance to Movement Control at the Command Headquarters situated at various parts of the country. In a British R.T.O.'s office the staff often consists of members of all Services, namely, Navy, Army, and Air Force. To these have now been added the personnel of the United States Transportation Corps. At first there was some

R.T.O. at a railway disposal area in the South of England. The jeep bears R.T.O. markings which permit of passage through military installations

Representative R.T.Os. at work. The inquirer is receiving assistance from an American (wearing red armband with orange lettering), a British officer, and a Naval representative



The Bengal & Assam Railway approach lines to the Burma Front. This important line of communication, from Katihar to Dibrugarh, with branches, totalling some 750 miles of metre-gauge, has been worked by U.S.A. railway units since March 1 (See our August 18 issue, page 169)

hesitance among U.S. personnel when dealing with members of the British Forces, but at the present time it is quite common to see American R.T.Os. giving advice and handling matters relating to British personnel in the same way as with his fellow countrymen.

Over Age L.M.S.R. Staff

There are now nearly 7,000 L.M.S.R. employees over retiring age who are remaining at their posts for the war period. More than 6,000 of these veterans have reached retiring age since the war broke out, and nearly 900 over 65 years of age have emerged from retirement to carry on their old jobs.

Women on the Railways

The British railways now employ more than 135,000 women in 320 different capacities. At first they were employed in unskilled posts as porters at goods and passenger stations, but later it was found that there were few tasks beyond their capabilities, and now they may be seen almost everywhere but on the footplate of locomotives. Some 2,000 are on permanent way work; 800 have passed the examinations for a signalman and are operating signal boxes; and 8,500 clean locomotives.

Civilian Air Raid Casualties in July

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during July:—

Killed (or missing believed killed)	2,441
Injured and detained in hospital	7,107

The casualties are classified as follow:—

	Men	Women	Under 16
Killed (or missing believed killed)	1,022	1,157	232
Injured and detained in hospital	2,746	3,876	485

D.B.S.T. and Blackout

A substantial relaxation of blackout regulations everywhere has been announced by the Minister of Home Security, to coincide with the ending of British Double Summer Time on September 17. Instead of complete blackout, indirect lighting will be permissible, excepting in a few special coastal areas. Greatly improved external lighting will be allowed in railway marshalling yards, docks and shipyards.

The day Fire Guard was discontinued throughout the country from September 12, and, with the exception of London and certain areas in the south and east of England, Fire Guard duties at night have also been suspended. From the same date, a reduction of duties was introduced for part-time Civil Defence workers, whose period of attendance (including training) has been reduced to 12 hours in 28 days. Home Guard parades and duties have also been relaxed very substantially. These changes should provide a welcome relief to many railwaymen rendering Home Guard, Civil Defence, and Fire Guard duties outside their working hours.

Railway Strike in Hungary

According to a Moscow radio report, railway strikes broke out in Hungary early this month, and traffic was discontinued entirely on three main lines in the neighbourhood of Budapest. The railwaymen are stated to have refused to handle any German goods.

Training Future Railway Leaders

The Denver & Rio Grande Western Railroad has decided to train supervisory members of its staff in the leadership needed to handle current and post-war problems. It is intended in this way to prepare understudies for the higher posts, and thus achieve an orderly readjustment of personnel when the end of the war comes. The plan is to assemble supervisors in groups of 20, at regular intervals, for instruction and discussion, including talks by departmental chiefs.

Dutch-Belgian-Luxembourg Customs Union

Belgium and Luxembourg, between which an Economic Union has existed since 1921, have concluded a temporary Customs Union with the Netherlands, dated September 5, 1944. It is intended to facilitate the re-establishment of economic activities and the creation of conditions favourable to the eventual realisation of a permanent and complete Customs Union. It provides a sequence to the Monetary Agreement concluded between the same three States on October 21, 1943. Under the new agreement signed by the Ministers of Foreign Affairs and of Finance of the three countries, the Netherlands and the Belgian-Luxembourg Economic Union adopt a common Customs tariff abrogating between themselves all payments of Customs duties. All produce coming under the heading of relief, and all materials and equipment intended for rehabilitation, will be admitted free of duty temporarily. These will constitute the bulk of imports during the period for which the agreement is made. The agreement comes into provisional force immediately on the re-installation of the Governments in their liberated countries.

Paris Metro Services Resumed

A limited service on the Paris Metro underground railway system is stated to have been resumed on September 11. For the time being, trains will not run after 1 p.m. on Saturdays and there will be no Sunday services.

Liverpool-Dublin Air Line

The air services between Liverpool and Dublin were resumed on September 8 after a suspension of five months. As recorded in our issue of April 21, they were suspended after April 15, in consequence of British restrictions before "D" Day.

New Roads for Turkey

The asphalt road linking Istanbul with Edirne (Adrianople) is on the point of completion.

Tenders have recently been invited by the Turkish Ministry of Public Works for the construction of a main road connecting Ankara with Sivas, *via* Kirsehir and Kaisarie.

An Indian Railway Achievement

During the past two years transport has been expedited on all Indian railways, and on the metre-gauge section of the B.B. & C.I. Railway, which has a route length of 1,878 miles, the record figure of 82·9 wagon miles per wagon day has been reached this year. According to efficiency statistics of foreign railways available in India, this figure is the highest recorded by any railway in the world having a similar mileage, says a statement issued in New Delhi.

Burma Road Repairs

As the result of unremitting effort by hundreds of thousands of workers, and of excellent co-operation between Chinese and American engineers, repair work on the Chinese section of the Burma Road, destroyed in many places to halt the Japanese advance on the Salween front in 1942, is progressing steadily. In the course of the repairs many improvements have been effected on the old road. Sharp turnings have been removed, the roadbed smoothed, and bridges and culverts strengthened and improved. Since the Chinese Expeditionary Forces under General Wei Li-huang opened their offensive across the Salween in May, traffic on the Eastern section of the road has become as heavy as it was before the fall of Burma.

Charles Roberts & Co. Ltd.

The annual general meeting of Charles Roberts & Co. Ltd., was held on September 6, at the registered offices, Horbury Junction, near Wakefield.

Mr. Duncan Bailey, O.B.E., M.I.Mech.E. (Chairman & Managing Director), presided.

The Chairman's statement circulated with the report and accounts showed that the gross profit on trading was £383,181, a decrease of £97,308 as compared with last year. The reduction was entirely brought about by unavoidable circumstances due to the exigencies of war. After nearly five years, certain products were no longer needed, and other products had to take their place; the dismantling of plant and the installation of new plant took time and cost money, and during such periods of transformation it was impossible to be making profits in the departments concerned.

Figures representing turnover and profit were exclusive of a certain important volume of work which the company handled on direct Government account, for which service it received a merely nominal payment, all of which was returned as excess profits.

Depreciation for the works, plant and wagon fleet had been provided, in accordance with usual practice. The company had more than maintained the efficiency of the wagon fleet by the elimination of a very large number of the older wagons, replacing them by over 2,000 new wagons since the war began, built in its own shops, and largely to its own improved design, of all-steel construction, and registered for a load of 16 tons. This new design, which was introduced just before the war, had been very successful, and recently the Minister of War Transport had ordered from the company and other builders 9,000 of this type.

Every effort was being made to keep the works in such a form that when peace was restored the change back to normal activities could take place with the minimum of delay and dislocation.

The provision made in the consolidated profit and loss account for taxation, amounting to £179,132, was an estimate of the total liability of the company and its subsidiaries, including provision for income-tax on the profits for the year under review. After providing this taxation, and all other outgoings chargeable to revenue, including war damage contributions, the net profit of the company and its subsidiaries amounted to £74,684, as compared with £68,310 for last year, an increase of £6,374. In view of the uncertainty of the post-war period, the board had decided to pay the same dividend as last year, and to carry forward the surplus in the profit and loss account, amounting to £124,971. The net retainable profit of £74,684 still compared very unfavourably with £104,677, which was the profit for the last pre-war financial year.

The overwhelming bureaucratic system which this war had produced surely proved to everybody except those blinded by prejudice and tied up with political labels, that the system did not and could not function as effectively as private enterprise. It was a system which, despite the good men who might be engaged in running it, had demonstrated that it invariably created delay, frustration, and ultimately, stagnation.

The report and accounts were adopted.

Anglo-Argentine Tramways Co. Ltd.

An extraordinary general meeting of the Anglo-Argentine Tramways Co. Ltd., held in London on September 8, unanimously sanctioned the scheme of arrangement adopted by the company's debenture stockholders on July 27, with the consequent alterations to the company's articles of association.

The meeting was preceded by the sixtieth ordinary general meeting of the company, at which the Chairman, Sir Bernard Docker, K.B.E., in the course of his speech, said:—The company remains the victim of circumstances in Argentina entirely beyond its control, and has had a raw deal. In common with the other tramway and underground railway interests concerned, it has taken every possible step to meet the requirements of the Co-ordination Law and Decrees under which the Buenos Aires Transport Corporation was formed. The same cannot be said of the authorities, who continue what can only be described as their persecution of the company, and the withholding of their sanction of the increase in fares so palpably necessary to place the corporation on a footing of economic stability.

The authorities have maintained that, with the corporation's sole possession and operation of all the means of passenger transport in Buenos Aires and its suburbs (other than those of the main-line railways), the volume of traffic handled by the corporation would be such as to produce, on present fares, a revenue sufficient to ensure the remuneration of capital at the temporarily reduced rate of 5 per cent. per annum agreed to by all parties to the Finance Contract of 1942, by virtue of which the incorporation of the *colectivo*, micro-omnibus, and certain independent bus undertakings became possible. This incorporation made very considerable progress in 1943 and is now practically completed. The accounts and statistics of the corporation for 1943 and the available returns for the first half of the present year reveal how widely the facts differ from the authorities' forecasts and the law's intentions. The losses still being incurred by the corporation show conclusively that the public of Buenos Aires are getting their journeys at less than cost, as they have done now for many years; whilst the major part of the system under the corporation's control continues to suffer deterioration at an ever-increasing rate as the result of long neglect, through lack of funds, of essential renewals and maintenance, which cannot be, and never could have been, provided by the corporation out of the existing uneconomic fares. If the terms of the Co-ordination Law had been faithfully carried out by the authorities, as we had every right to expect they would be, the fares would, as provided by the law, have been long ago increased to cover the additional costs and expenses with which the corporation has been burdened and provide for remuneration of the share capital.

With the advent to power of the new Government in Argentina in June, 1943, attempts were made to discredit the findings of the Special Commission of 1937, by which the rightful share of this company and its subsidiaries was established. The attempts, and the action that followed, were in direct violation of the letter and spirit of the agreement constituted by the decrees issued pursuant to the Co-ordination Law, under which, and relying on governmental good faith, the assets of the company and its subsidiary omnibus undertakings were transferred to the corporation. The company has taken all legitimate steps to protect its rights. Representations were also made by the British Ambassador in Buenos Aires to the Argentine Minister of Foreign Affairs in September, 1943. These efforts have so far been without any effect. By one of the various decrees issued in August, 1943, the Argentine Government awarded itself a supplementary director-representative on the board of the corporation. This move, combined with others, gave to the State and municipality the majority of the voting power on the corporation's board, by virtue of which it lost no time in transferring all the executive posts in the corporation to its own delegates.

The difficulties of the corporation have been created by the authorities themselves, who, having thereby caused default in the service of the debenture obligations they had taken over, proceeded to take advantage of the fact by issuing a Decree calling upon their trustee to assume full administration of the corporation's affairs. It is not easy to comment with restraint on such facts. A situation where the debenture-holders themselves cause the adverse conditions that give them the legal right to control a public undertaking is, to say the least, unique. In all the circumstances we propose to make a definite claim on the Argentine Government, calling upon it to honour its full contractual obligations towards the company under the Urban Transport Co-ordination Law of 1936 and the Debenture Loan Agreement of 1942, which the Government specifically approved; to make good the damages already suffered by the company from non-fulfilment of these obligations; to withdraw all violating Decrees; to restore capital reductions already effected; and to abandon its intentions of imposing new capital reductions.

I am assured that the Foreign Office, which has in the past made representations on our behalf and which has a full knowledge of our case and its antecedents, will continue to give us support in the defence of our interests. Failing satisfactory and practical response to our claim within a reasonable period we shall appeal to the Courts for justice.

British Columbia Electric Railway Co. Ltd.—The report for the year 1943 shows that the earnings, after providing for depreciation, sinking fund and renewals, and adding final dividends from subsidiaries for 1942, were £398,028 (£432,809). Net profit after deducting £118,497 (same) for debenture interest was £279,531 (£314,312). There is added £14,128 (£16,549) brought in and £14,926 (£14,925) exchange credit. The final preferred ordinary dividend is 2 per cent., making 5 per cent. (5½ per cent) for the year, and the final deferred ordinary dividend is 3¾ per cent., making 6¾ per cent. (7½ per cent.) for the year, and leaving £2,173 to be carried forward. Passengers on the electric railway system were 131,619,270 (107,052,564) and freight tonnage was 890,137 (844 663).

Australasian Railway Statistics

The annual report on the workings of the Queensland Government Railways for the year ended June 30, 1943, contains a table in which are summarised the principal operating figures and statistics for each of the Government railway systems of the States which comprise the Australian Commonwealth and also of New Zealand. From the table, which is reproduced, will be seen the considerable variations which occur in each territory. The percentage of working expenses to earnings ranges from 64·11 in Queensland to 80·71 in New Zealand and 80·29 in South Australia. Earnings per average mile open range between the £1,008 for Western Australia to the £5,560 of New South Wales. Working expenses per average mile open similarly are from £786·84 in Western Australia to £4,462·35 in New South Wales.

A similar statement compiled from statistics issued in respect of the year 1942 was published in our issue of May 7, 1943.

It will be noticed that the figures for Victoria relate to the year ended June 30, 1942. This accords with the summary published by the Queensland Government Railways, which presumably had not received 1943 figures at the time the table was compiled. Although the report of the Victorian Railways for the year ended June 30, 1943, has since been published, and has been noticed in our columns, it does not include some of the data contained in the comparative analysis, and therefore we have left the Queensland statement in its original form.

COMPARATIVE ANALYSIS OF RAILWAY ACCOUNTS IN THE STATES OF QUEENSLAND (EXCLUDING UNIFORM GAUGE RAILWAY), NEW SOUTH WALES, VICTORIA, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND THE DOMINION OF NEW ZEALAND

Particulars	Queensland Year ended June 30, 1943	New South Wales Year ended June 30, 1943	Victoria Year ended June 30, 1942	South Australia Year ended June 30, 1943	Western Australia Year ended June 30, 1943	New Zealand Year ended March 31, 1943
Area in square miles	670,500	309,432	87,884	380,070	975,920	104,015
Population	1,038,500	2,846,000	1,952,152	612,000	470,000	1,640,191
Miles open	6,497	6,127¼	4,766	2,547½	4,381	3,460
Gauge	3 ft. 6 in. and 2 ft.	4 ft. 8½ in.	5 ft. 3 in. and 2 ft. 6 in.	5 ft. 3 in. and 3 ft. 6 in.	3 ft. 6 in.	3 ft. 6 in.
Capital (opened lines)	£39,783,015	£151,849,840	‡£52,814,836	£29,686,970	£26,715,886	£68,685,063
Average cost per mile	£6,123	£24,792	£11,082	£11,653	£6,097	£19,851
Population per mile of railway	160	464	410	240	107	474
Cost per head of population	£38 6s. 2d.	£53 7s. 1d.	£27 1s. 1d.	£48 10s. 2d.	£56 16s. 11d.	£41 17s. 6d.
Gross earnings	£17,148,196	£34,071,958	£14,519,839	£5,832,475	£4,417,907	£14,128,993
Working expenses	£10,993,842	£27,343,105	£11,599,580	£4,563,089	£3,447,512	£11,302,413
Profit on working	£6,154,354	£6,728,853	£2,920,259	£1,269,386	£970,395	£2,826,580
Percentage of net earnings to capital (open lines)	£15 9s. 4¼d.	£4 8s. 8d.	£5 10s. 7d.	£4 5s. 7d.	£3 12s. 7d.	£4 6s. 2d.
Percentage of working expenses to earnings—						
Maintenance	15·18	22·62	13·51	11·68	15·36	16·92
Locomotive	31·73	34·28	25·27	38·48	36·06	38·75
Traffic	15·47	18·75	22·18	22·80	18·85	23·06
General	1·73	4·60	18·93	7·33	7·77	1·98
Total	64·11	80·25	79·89	80·29	78·04	80·71
Earnings per average mile open	£2,639	£5,560	£3,059	£2,289	£1,008	£3,648
Working expenses per average mile open—	£	£	£	£	£	£
Maintenance	400·70	1,257·92	413·47	267	154·86	617·34
Locomotive	837·37	1,906·15	773·10	882	363·52	1,413·64
Traffic	408·18	1,042·27	678·45	522	190·13	841·21
General	45·68	256·01	579·05	167	78·33	72·17
Total	£1,691·93	£4,462·35	£2,444·07	£1,838	£786·84	£2,944·36
Earnings per train mile	s. d. 17 5¼	*	s. d. 15 11	s. d. 17 2	s. d. 13 8	s. d. 16 4½
Working expenses per train mile—						
Maintenance	2 7¾	*	2 1¾	2 0	2 1	2 9½
Locomotive	5 6½		4 0½	6 7½	4 11	6 4½
Traffic	2 8¾		3 6½	3 11	2 7	3 9½
General	0 3½		3 0½	1 3½	1 1	0 3½
Total	11 2½		12 8½	13 9½	10 8	13 2½
Earnings per engine	£23,653	£29,602	£20,364	£17,836	£11,270	£19,429
Earnings per carriage (coaching)	£3,069	£4,497	£3,857	£2,666	£3,083	£2,406
Earnings per wagon (goods and live stock)	£659	£761	£331	£480	£268	£261
Earnings per head of population	£16 10s. 3d.	£11 19s. 5d.	£7 8s. 9d.	£9 10s. 7d.	£9 8s. 0d.	£8 12s. 3d.
Number of passenger journeys	32,869,263	237,441,277	180,981,900	30,863,577	17,092,126	36,133,268
Goods tonnage	5,672,700	18,845,956	6,765,413	3,218,115	2,361,487	8,035,046
Live stock tonnage	559,101	†	737,227	241,740	143,195	852,043
Average number of passengers per average mile of railway	5,058	38,750	38,134	12,115	3,901	10,618
Train mileage	19,650,834	*	18,248,713	6,792,459	6,469,660	15,139,882
Train miles per average mile of railway open	3,024	*	3,845	2,666	1,477	4,449

* Train mileage statistics suspended during war period. † Livestock statistics suspended during war period. ‡ Capital reduced by £25,564,189 Railway (Finance Adjustment) Act, 1936

RICHARD THOMAS & CO. LTD.—Mr. E. H. Lever, Chairman of the company, in his statement circulated with the annual report, points out that it is perhaps too little appreciated how important a part the company plays in the economic structure of the country. Not only does it give regular employment to some 25,000 to 30,000 people, but its ownership is also widespread; there are at least 30,000 preference and ordinary shareholders with an average shareholding of well under £300. Out of gross manufacturing and trading receipts of £26,000,000, some £15,000,000 was absorbed in paying for raw materials, materials for plant maintenance, and sundry expenses other than remuneration to employees; a further £926,000 was accounted for by depreciation and obsolescence. Of the balance of approximately £10,000,000 about £7,100,000 was spent in wages, salaries, and other forms of remuneration to employees, and £1,760,000 will go directly to the Government in payment of taxes. Debenture interest accounted for £450,000, tax on which is borne by the recipients, and £740,000 was left for the benefit of the shareholders, of which £460,000 is being paid in preference and ordinary dividends.

Ministry of War Transport Accident Report

Dumfries, L.M.S.R., June 12, 1944

Colonel A. C. Trench inquired into the accident which occurred near Dumfries No. 1 signal box, L.M.S.R., about 9.37 p.m. on June 12, 1944, when an empty carriage train from Leeds to Kilmarnock approached under false clear distant signals, and, passing the home signals at the end of the station platform in the stop position, was diverted to the Stranraer branch, where it collided at a speed of not less than 30 m.p.h. with the driving trailer of a push-and-pull motor train, which was waiting to pass through a crossover. This train had the brake off and was driven forward about 160 yd. The driver, who was in the driving compartment, was fatally injured, as were the driver and fireman of the empty carriage train. The guard of the latter had to be detained in hospital.

The weather was fine and it was still full daylight. There was no dispute as to the indications displayed by the signals. The empty carriage train found the distant signal for No. 4 box "off," then that for No. 3 box, then the common distant signal serving for Nos. 2 and 1 boxes. The last-named was the signal actually working incorrectly, the distants for Nos. 3 and 4 boxes having been pulled off in turn by the signalmen there, as the rules authorised them to do. The signalman at No. 1 box had accepted the train from No. 2 box and taken the slot off its starting signal, with his points set for the branch—on account of another movement—under Block Regulation 4, although the local instructions required the line to be clear to the branch starting signal. He stated that, when learning to work the box, he had understood he might accept with the line clear to the crossover, although he admitted that the instructions gave no such relaxation. There was some dispute as to the normal practice in the box, and there appeared to be some ground for his statement; it was alleged that to do otherwise would give rise to delay. He should have accepted the train under Block Regulation 5 and a local instruction requiring it to be admitted to the platform by a calling-on arm below the slotted signal above mentioned, which serves as an outer home for No. 1 box.

The common distant arm for boxes Nos. 1 and 2 is not slotted but worked with the aid of an apparatus known as the Hellier & Gasson control. [This was designed, Patent No. 16,662 of 1911, by W. T. Hellier, an Assistant, and A. E. Gasson, Chief Draughtsman, of the Signal & Telegraph Department of the former L.S.W.R., under the late Mr. Arthur H. Johnson. It was a form of dis-engager, for controlling distant or other signals, under short-section working. The reversal of the lever in the second box unlocked that in the first one and put it into gear with the signal transmission, enabling the signal to be lowered from the latter box. The replacement of either lever would put the signal to the "on" position again, and all parts were so constructed that no irregular operation of the levers could damage them.—ED. *R.G.*] The distant signal in question is repeated in No. 1 box by a combined arm and control repeater, on the block shelf, and in No. 2 box by an arm repeater on the shelf and a control repeater on the wall in a less conspicuous position. These control indications are actuated by a commutator worked by the counterweight arm, itself at the end of the wire coming from No. 1 box, of the Hellier & Gasson apparatus, fixed below the floor of No. 2 box. (Only three other examples of it are understood to exist in the area.)

The counterweight of 20 lb. has a tapered slot through its diameter and slides on the weight bar. It is secured thereto by a tapered key, with, as an additional precaution against coming off, a ½-in. bolt and nut, without split pin or locking device, through a $\frac{9}{16}$-in. hole, about 1 in. from the counterweight when that is properly secured. The counterweight would tend to jam the key when going to normal and to release itself from it when coming off. After the accident the weight and key were found to have fallen off the arm together to the ground; also the bolt, from which the nut had come unscrewed, the angles of its head having been battered by blows from the weight. The arm alone was not heavy enough to pull back the wire from No. 1 box and therefore the apparatus remained after last being used in a condition to allow No. 2 box to pull and clear the distant signal—without the consent of No. 1 box. In addition, the repeater in No. 2 box made it appear—incorrectly—that No. 1 box had operated its control.

When the signalman at No. 1 box accepted the empty carriage train and operated the slot on No. 2 box starting signal, he failed to notice that his repeater was showing the control for the distant signal as being "off," although he observed that it showed the arm as being at that moment "on." When the No. 2 signalman saw his slotted starting signal was "off" he cleared his home signal and then—misled by the false indication of the repeater, which had in fact been showing for some time that the control from No. 1 box was "off"—he pulled his distant lever and so irregularly lowered his signal. The men in Nos. 3 and 4 boxes then lowered their distant signals in turn, as usual. The empty carriage train was seen approaching at speed by the fireman of the push-and-pull train, and a platform inspector endeavoured by whistling and giving hand signals to attract the enginemen's attention to the danger position of the signals on the platform.

About 4.20 p.m. on the same day the driver of a freight train had found the distant signals for Nos. 3, 2 and 1 boxes "off" and the signals on the platform "on," but before he reached the latter one of them was lowered and a green flag, under Block Regulation 5, shown from No. 1 box. He shouted to the signalman as he passed that his distant signal was "off," but the latter did not understand what was called out and thought it was a complaint about being delayed. The driver did not report the matter until the next morning.

Inspecting Officer's Conclusion

This accident was due to: (*a*) the failure of the Hellier & Gasson apparatus, and of the signalmen in Nos. 1 and 2 boxes to notice that their indicators relating to it had been out of order for some hours at least, and also to the failure of the freight train driver to make certain that his report of the defective signalling had been accurately heard; and (*b*) the acceptance of the empty carriage train without warning while the line was not clear for the prescribed distance.

The Hellier & Gasson apparatus is of robust construction and has hitherto given no trouble of this kind, but Colonel Trench criticises the plain bolt, with unsecured nut, as unmechanical. A lock nut or split pin he considers essential. The taper key itself cannot be criticised, and with proper maintenance should not work loose. The lineman said he inspected the apparatus about a fortnight before the accident and it appeared in order; he had not tested the securing of the key, or bolt and nut, by hand.

Colonel Trench considers that the possibility of outside interference may be discounted, and that the detachment of the counterweight was due more probably to inadequate care in maintenance. No previous case of a similar failure has been traced. The signalmen should certainly have noticed the irregular working of the repeater indicators, but medical examination disclosed that the state of health of the signalman in No. 1 box may have had a bearing on his failure to do so, and the indicator in No. 2 box was considerably less conspicuous than that in No. 1. It is difficult to understand why the freight train driver, having been misled by a serious signal irregularity, did not take steps to ensure without any shadow of doubt that the signalman in No. 1 box was aware of what had happened. It is not surprising that the latter did not hear or understand a message shouted from three tracks away.

Recommendations and Remarks

The signalling arrangements at Dumfries are complicated and might well be simplified and improved; a scheme for modernisation has been prepared, and, but for the war, would probably have been installed. The company should bear this resignalling scheme in mind as justifying a high place in the order of priority when such work becomes possible. In the meantime the means of securing the counterweight on the Hellier & Gasson controls should be improved.

Staff and Labour Matters

Railwayman's Gallantry

The L.N.E.R. Medal is to be awarded to Driver Benjamin Gimbert, of March, Cambridgeshire, employed by that railway, who, as recorded in our August 4 issue, was awarded the George Cross last July for gallantry when an ammunition wagon caught fire near a Cambridgeshire station.

Wages Board for Canteen Workers

A wages board for industrial and staff canteen undertakings has now been appointed under the chairmanship of Mr. William Gorman, K.C. The board, which is the first to be set up and constituted on the recommendation of the Catering Wages Commission, consists of three independent persons and 15 representatives each of employers and workers. In addition to the Chairman, the independent members are Professor W. Hamilton White (Deputy-Chairman) and Miss Janet A. Kydd.

The wages board is empowered to submit to the Minister of Labour proposals for fixing workers' remuneration, holidays with pay and the intervals to be allowed for meals and rest. Its proposals will have the force of law if embodied in a Wages Regulation Order made by the Minister.

A. C. WICKMAN LIMITED.—The final ordinary dividend in respect of the year 1943 is 3 per cent., making 8 per cent. for the year, less tax. This compares with 7½ per cent., making 12½ per cent., for each of the three preceding years.

Notes and News

Costa Rica Railway Company.—The Costa Rica Railway Company is paying 2½ per cent. on account of interest arrears on the £600,000 6½ second debentures for the year to June 30, 1940. Payment will be made on September 30.

Buenos Aires Central Railway.—At an adjourned meeting of the holders of 4½ per cent. first mortgage debentures of the Buenos Aires Central Railway Limited, held on September 12, resolutions were passed giving immediate effect to the cancellation of interest authorised conditionally in the scheme of arrangement dated July 12, 1940.

British Locomotives in South Africa.—Two steam locomotives were delivered last month in South Africa by Great Britain. These are the first new locomotives received in the Union since August, 1939, and they represent the first addition to the locomotive power of the South African Railways & Harbours for five years. One is being assembled at Durban and the other at Cape Town.

Silentbloc Limited.—Mr. H. Vezey Strong, Chairman, presiding at the annual meeting of the company, said that the recently announced issue of capital would enable the board to proceed to the next stage of its plans, whereby "elastics" in the form of Silentbloc and Silentbond products, in peacetime might fully cater for those wider demands both at home and overseas arising out of their successful application to wartime problems.

Great Western of Brazil Railway Company.—On September 29 the company will pay interest on its debenture capital in respect of the half-year ended December 31, 1943. Warrants will be posted on September 28 to holders of the permanent 6 per cent. debenture stock registered before September 15. Coupon No. 66 of the 4 per cent. debentures which were due January 1, 1944, will be paid on September 29 on presentation to Glyn Mills & Company, 67, Lombard Street, E.C.3.

Engineering & Lighting Equipment Co. Ltd.—Mr. S. A. Marples, A.M.I.M.E., M.I.A.E., Chairman of the company, presiding at the annual meeting recently, said that the factory in all its departments had been fully employed, and a substantial increase in output had been achieved with a labour force no greater than in the previous year. Contracts had been fulfilled of a highly technical kind for Government requirements. Post-war equipment for all fields of lighting was receiving attention, not only for commercial, industrial, and street lighting, but in new spheres for the home and export markets, where the company's specialised experience would be of undoubted benefit.

Canadian National Railways.—Gross earnings in July, 1944, were $38,481,000, a decrease of $1,351,000 in comparison with July, 1943, but the working expenses of $29,739,000 were $1,397,000 lower, so that the net earnings of $8,742,000 were $46,000 higher. Aggregate gross earnings from January 1 to July 31, 1944, amounted to $252,060,000, an increase of $1,744,000 in comparison with the first seven months of 1943, but the aggregate net earnings of $49,725,000 were $3,906,000 lower.

Canadian Pacific Railway.—For the month of July, 1944, gross earnings of the Canadian Pacific Railway amounted to $27,316,000, an increase of $673,000 in comparison with July, 1943. Working expenses advanced by $944,000 to $23,657,000, and the net earnings of $3,659,000 were $271,000 lower. Aggregate gross earnings from January 1 to the end of July, 1944, were $181,891,000, an increase of $19,017,000 in comparison with the first seven months of 1943, and the net earnings of $26,339,000 showed an improvement of $1,206,000.

Diesel Works Deal.—The directors of Mirrlees, Bickerton & Day Limited state that Associated British Engineering Limited has entered into a conditional agreement for the purchase of the goodwill (including the name) and assets of the diesel engine business of the company. The agreement is to come up for consideration by the Mirrlees, Bickerton & Day shareholders at a meeting to be held on September 28. In the event of the agreement being approved, it is proposed by Associated British Engineering Limited that a new company should be formed to continue the business under the old name. The price payable is £372,370 for the net current assets and the fixed assets, including the Hazel Grove works near Stockport. If the agreement is approved, the existing Mirrlees, Bickerton & Day company will continue to own the Glasgow factory and operate under the name of the Mirrlees-Watson company, and continue the manufacture of special machinery previously produced. It will also remain responsible for the sale of Roscru pumps and mechanical stokers which, for the time being, will be produced at the Hazel Grove works by the new company.

Economical Lubrication of Stationary I.C. Engines.—The Ministry of Fuel & Power has issued an Industrial Bulletin (Oils No. 4) dealing with the economical lubrication of stationary internal combustion engines. At the end of this bulletin are twelve paragraphs of "summarised advices" which give at a glance various

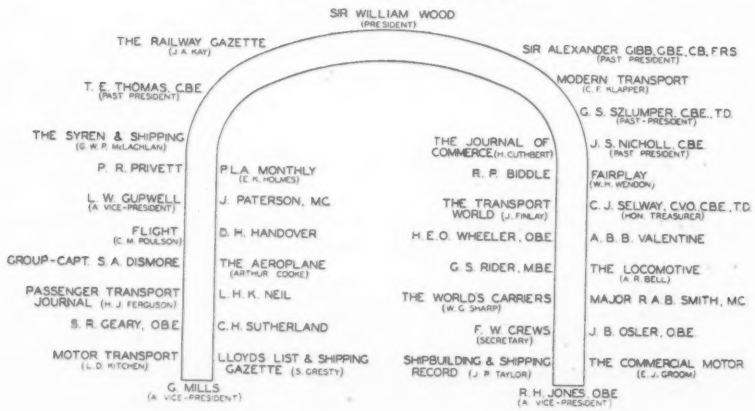
British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices Sept. 12, 1944	Prices Rise/Fall
G.W.R.				
Cons. Ord.	65½	57½	55¾	— 2½
5% Con. Pref. ...	120½	108	115½	— 1
5% Red. Pref. (1950)	110½	106	105	—
5% Rt. Charge ...	137½	123½	131½	—
5% Cons. Guar. ...	135½	121 7/16	128½	— 1
4% Deb.	118	107½	114½	—
4½% Deb.	119	109 3/16	115½	—
4½% Deb.	124½	116	120½	—
5% Deb.	138	127	134½	—
2½% Deb.	77	72½	74½	—
L.M.S.R.				
Ord.	34 13/16	28	28½	— 1½
4% Pref. (1923) ...	66½	58	57	— 1½
4% Pref.	80½	73	74	— 1½
5% Red. Pref. (1955)	105½	102	103½	— —
4% Guar.	107	98½	100	— ½
4% Deb.	109½	103½	105	— —
5% Red. Deb. (1952)	111½	108	109½	— —
L.N.E.R.				
5% Pref. Ord. ...	12 3/16	7⅛	8½	— —
Def. Ord.	5⅛	3⅛	4½	— —
4% First Pref. ...	66½	57½	56½	— 1
4% Second Pref. ...	36½	30⅛	29½	— 1½
5% Red. Pref. (1955)	99⅛	93	98½	— 1
4% First Guar. ...	102⅛	94	98	— —
4% Second Guar. ...	93½	85⅛	90	— —
3% Deb.	86⅛	78⅛	82½	+ ½
4% Deb.	109 7/16	101⅛	104½	— —
5% Red. Deb. (1947)	106½	102	103	— —
4½% Sinking Fund Red. Deb.	108	103½	105½	— —
SOUTHERN				
Pref. Ord.	80	72½	73½	— 1
Def. Ord.	26⅜	20⅜	23½	— ½
5% Pref.	119½	106⅛	114½	— 1
5% Red. Pref. (1964)	114	108½	113½	— —
5% Guar. Pref. ...	136	122	127½	— 2
5% Red. Guar. Pref. (1957)	117	109⅜	113½	— —
4% Deb.	117½	106	112½	— —
5% Deb.	137	126	134	+ ½
4% Red. Deb. (1962-67)	112	106½	109½	— —
4% Red. Deb. (1970-80)	112	107	109½	— —
FORTH BRIDGE				
4% Deb.	109	104⅞	104	— —
4% Guar.	105	102½	102½	— —
L.P.T.B.				
4½% "A"	125 11/16	114	120½	— —
5% "A"	133 3/16	123	130½	— —
3% Guar. (1967-72)...	100½	97	99	— —
5% "B"	124	114	121½	— —
"C"	72	53	69	— 1
MERSEY				
Ord.	34½	27	34	— 1
3% Perp. Pref. ...	68	59½	69	— —
4% Perp. Deb. ...	104	102½	103	— —
3% Perp. Deb. ...	83	78½	79	— —
RELAND*				
BELFAST & C.D.				
Ord.	9	6	10	— —
G. NORTHERN				
Ord.	24½	16	25½	— ½
Pref.	—	—	42	— —
Guar.	—	—	65	— —
Deb.	—	—	84½	— 1½
G. SOUTHERN				
Ord.	30	9½	55	— 2½
Pref.	30	11	56	— 1½
Guar.	64	26½	73½	+ ½
Deb.	88½	51⅜	95	+ 1/16

* Latest available quotation

Council of Institute of Transport Luncheon to the Transport Press

(*See last week's issue, page* 245)


SIR WILLIAM WOOD (PRESIDENT)
THE RAILWAY GAZETTE (J. A. KAY)
SIR ALEXANDER GIBB, G.B.E., C.B., F.R.S. (PAST PRESIDENT)
T. E. THOMAS, C.B.E. (PAST PRESIDENT)
MODERN TRANSPORT (C. F. KLAPPER)
G. S. SZLUMPER, C.B.E., T.D. (PAST-PRESIDENT)
THE SYREN & SHIPPING (G. W. P. McLACHLAN)
THE JOURNAL OF COMMERCE (H. CUTHBERT)
J. S. NICHOLL, C.B.E. (PAST PRESIDENT)
P. R. PRIVETT
P.L.A. MONTHLY (C. H. HOLMES)
R. P. BIDDLE
FAIRPLAY (W. H. WENDON)
L. W. GUPWELL (A. VICE-PRESIDENT)
J. PATERSON, M.C.
THE TRANSPORT WORLD (J. FINLAY)
C. J. SELWAY, C.V.O., C.B.E., T.D. (HON. TREASURER)
FLIGHT (C. M. POULSON)
D. H. HANDOVER
H. E. O. WHEELER, O.B.E.
A. B. B. VALENTINE
GROUP-CAPT. S. A. DISMORE
THE AEROPLANE (ARTHUR COOKE)
G. S. RIDER, M.B.E.
THE LOCOMOTIVE (A. R. BELL)
PASSENGER TRANSPORT JOURNAL (H. J. FERGUSON)
L. H. K. NEIL
THE WORLD'S CARRIERS (W. G. SHARP)
MAJOR R. A. B. SMITH, M.C.
S. R. GEARY, O.B.E.
C. H. SUTHERLAND
F. W. CREWS (SECRETARY)
J. B. OSLER, O.B.E.
MOTOR TRANSPORT (L. D. KITCHEN)
LLOYDS LIST & SHIPPING GAZETTE (S. CRESTY)
SHIPBUILDING & SHIPPING RECORD (J. P. TAYLOR)
THE COMMERCIAL MOTOR (E. J. GROOM)
G. MILLS (A. VICE-PRESIDENT)
R. H. JONES, O.B.E. (A. VICE-PRESIDENT)

points which require careful watching if economy in the use of lubricating oil is to be obtained. The bulletin is divided into six sections, dealing with: (1) lubricating oil running costs; (2) pistons and cylinders; (3) enclosed engines; (4) open engines; (5) methods of reconditioning and filtration; (6) routine of reconditioning and filtration.

Central Argentine Railway Limited.—On October 19 the company will pay interest on its 4 per cent. debenture stock, in respect of the half-year to June 30, 1944. Warrants will be posted on October 18 to holders registered on September 7.

International Civil Aviation Conference.—The Senate Department announced in Washington on September 11 that more than 50 countries had been invited by the U.S.A. Government to take part in an international conference on civil aviation, to be held in the United States, and to begin on November 1.

Bengal-Nagpur Railway Co. Ltd.—The terms proposed by the Secretary of State for India for the determination of the company's working contract on September 30, 1944, were approved by the stockholders at the extraordinary general meeting which was held on August 29, 1944, and the terms have, therefore, become effective. In these circumstances, the directors consider that the company should be wound up as from October 2 next and have given formal notice convening an extraordinary general meeting of the stockholders at noon on that date for the purpose of considering and, if thought fit, passing the necessary special resolution to wind up. If this resolution is duly passed, it is intended that immediately after the commencement of the winding up the liquidators will make an initial distribution to the stockholders at the rate of £119 per £100 of capital stock of the company.

Post-War Pullman Dining Cars.—Plans for a post-war railway dining car have been announced by the Pullman-Standard Car Manufacturing Company. The new dining cars are to be equipped with vibrationless tables with seats set at a 45 degree angle to the side of the car, instead of at right angles as at present. Tables for two are planned as well as for four. Mr. Ellis W. Test, Assistant to the President in Charge of Engineering & Research, said that the company expects "a far speedier turnover" than in conventional dining cars because of the greater accessibility of tables under the new floor plan. The capacity of 42 persons compares with the present figure of 48.

Stephenson Clarke & Associated Companies Ltd.—The audited accounts of Stephenson Clarke & Associated Companies Ltd., and of the companies in which it controls, directly or indirectly, 90 per cent. or more of the share capital, show that the consolidated profits applicable to the parent company and its holdings for the year ended March 31, 1944, after making full provision for depreciation and taxation other than income tax, but before deducting debenture interest and sinking fund on the first debenture stock of the parent company amount to £578,666. The profit for the year is £237,508 and £152,638 is brought in.

Mr. John Shearman's Presidential Address.—The next general meeting of the Institution of Automobile Engineers is to be held in the Hall of the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1, on Tuesday, October 3, at 6.15 p.m. The President for the 1944-45 Session, Mr. John Shearman (Road Motor Engineer, L.M.S.R.), will be inducted, and will deliver his Presidential Address entitled "History and Conjecture." The first part of this address is intended to outline the development of inland transport in England between 1800 and 1840, describing in some detail the serious efforts made to introduce mechanical road transport by steam. The latter part of the address will discuss the possibilities of using home-produced fuels on motor vehicles in this country. Cards of invitation to admit visitors to the meeting may be obtained on application to the Acting Secretary, the Institution of Automobile Engineers, 12, Hobart Place, London, S.W.1, enclosing a stamped envelope for reply.

Contracts and Tenders

Below is a list of orders placed recently by the Egyptian State Railways :—

Dreadnought File Company : Hand tools.

M. Jacobs Young & Co. Ltd. : Cane sticks, Rattan cane rods.

Rotax Limited : Anode converter and spares.

British Insulated Cables Limited : Cable, etc.

Marconi's Wireless Telegraph Co. Ltd. : Wireless.

General Electric Co. Ltd. : Valves, etc.

Newton Brothers (Derby) Limited : Transformers, etc.

Standard Telephones & Cables Limited : Valves, etc.

Forthcoming Meetings

September 16 (*Sat.*).—Stephenson Locomotive Society, at the Junior Institution of Engineers, 39, Victoria Street, London, S.W.1, 3 p.m. "Stratford's contributions to locomotive design" by Mr. W. O. Skeat.

September 27 (*Wed.*).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. "The application of carrier telephony to British railway trunk line communications," by Mr. W. Thompson.

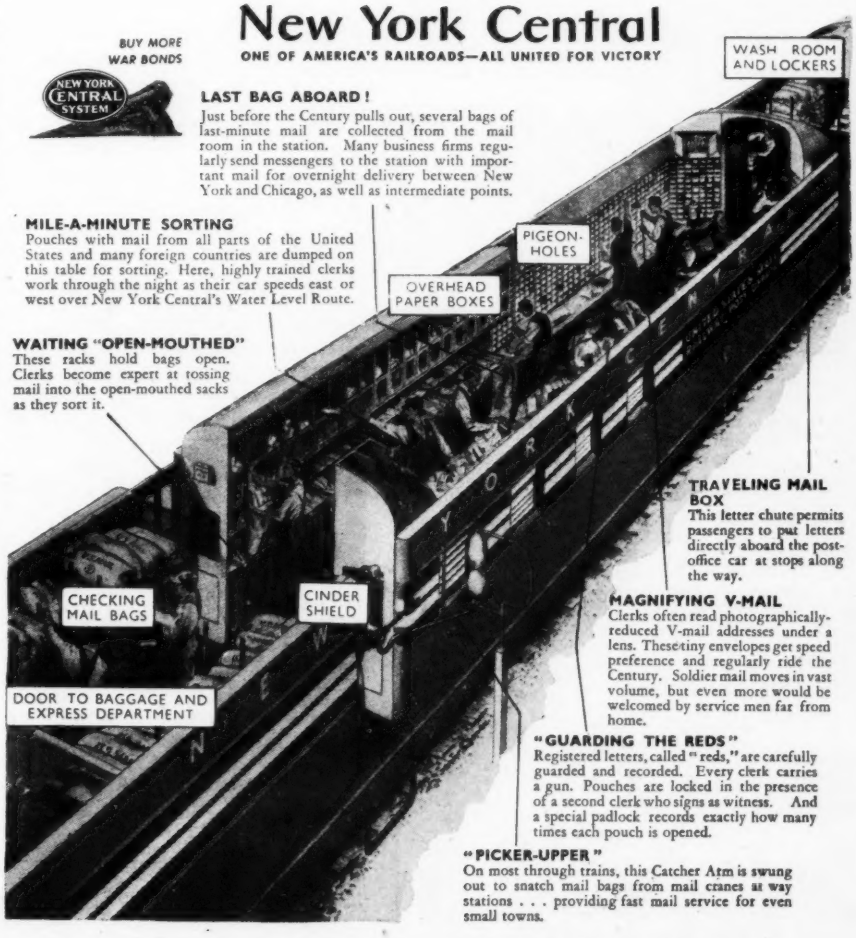
American Travelling Mail Van

New York Central

ONE OF AMERICA'S RAILROADS—ALL UNITED FOR VICTORY

BUY MORE WAR BONDS

NEW YORK CENTRAL SYSTEM



LAST BAG ABOARD!
Just before the Century pulls out, several bags of last-minute mail are collected from the mail room in the station. Many business firms regularly send messengers to the station with important mail for overnight delivery between New York and Chicago, as well as intermediate points.

MILE-A-MINUTE SORTING
Pouches with mail from all parts of the United States and many foreign countries are dumped on this table for sorting. Here, highly trained clerks work through the night as their car speeds east or west over New York Central's Water Level Route.

WAITING "OPEN-MOUTHED"
These racks hold bags open. Clerks become expert at tossing mail into the open-mouthed sacks as they sort it.

TRAVELING MAIL BOX
This letter chute permits passengers to put letters directly aboard the post-office car at stops along the way.

MAGNIFYING V-MAIL
Clerks often read photographically-reduced V-mail addresses under a lens. These tiny envelopes get speed preference and regularly ride the Century. Soldier mail moves in vast volume, but even more would be welcomed by service men far from home.

"GUARDING THE REDS"
Registered letters, called "reds," are carefully guarded and recorded. Every clerk carries a gun. Pouches are locked in the presence of a second clerk who signs as witness. And a special padlock records exactly how many times each pouch is opened.

"PICKER-UPPER"
On most through trains, this Catcher Arm is swung out to snatch mail bags from mail cranes at way stations . . . providing fast mail service for even small towns.

Another of the series of New York Central Railway advertisements, showing the composition of a travelling mail van

Railway Stock Market

Business in stock markets has been only moderate, with industrial shares continuing to move back owing to small demand and conflicting market views as to post-war prospects of individual companies. British Funds became easier but later firmed up again and were slightly higher on balance. Whereas industrials and home rails declined further owing to post-war uncertainties, there has been an increase of speculative interest in foreign bonds, in South African gold mining shares, which showed substantial gains, and in shares of companies with European interests. Argentine rails attracted some attention, although best prices were not held. Home rails have long been under the influence of post-war uncertainties, and now it is becoming more fully realised that the outlook for many other important industries will also turn in a large measure on the extent to which the Government decides to continue wartime controls, etc., and the success achieved in securing full employment of the country's resources after the war. The hope long expressed in regard to the railways that the Government will make its attitude clear as soon as possible is being followed by similar hopes expressed on behalf of many other industries now that post-war uncertainties are looming ahead. Despite the very large yields, home railway junior stocks further weakened, due mainly to lack of buying interest; but as in the case of industrial shares, selling has been more in evidence during the past few days, resulting in lower prices, and consequently a further rise in yields. Some iron and steel shares now show generous yields, although during the war period earnings have been much in excess of dividends paid, and in the early post-war years there would apparently have to be a big fall in profits to necessitate any material change in dividend rates. Shares of locomotive engineering and kindred companies have been largely well maintained, while in a few cases, such as Gloucester Wagon, prices were inclined to improve, the tendency being to favour shares of companies which have scope for a substantial volume of export trade after the war. Still reflecting the war news, French railway bonds continued to move higher. The better tendency in South American rails was again based on market hopes of a change of heart by the Argentine authorities, while the debenture payments announced by the Great Western of Brazil and Central Argentine companies also assisted sentiment. Prices in this section, however, declined later. At the end of last week some speculative attention was given to ordinary and preference stocks of Argentine railways, although it is realised that despite the prospect of the Argentine enjoying prosperity after the war, these stocks are unlikely to return to the dividend list unless the authorities in that country respond to the appeal for fair treatment for the railways. The indication of the long-sighted policy contemplated by the main-line railways in connection with air transport powers, suggested by the editorial in the current issue of the L.N.E.R. magazine, was not overlooked in the market; but home railway stocks were governed by the surrounding trend to lower values, and declines in junior stocks have been general.

Compared with a week ago, Great Western ordinary further declined from 57¾ to 56; the 5 per cent. preference was a point down at 116, although the 4 per cent. debentures remained at 114½. L.M.S.R. ordinary was 28¼, compared with 30 a week ago, the senior preference also moved back from 75½ to 73⅞, and the 1923 preference from 58¼ to 57½. L.N.E.R. first preference reacted from 57½ to 56¼, and the second preference from 31 to 29½. Southern deferred was 23⅜, as against 24⅛ a week ago, the preferred also declining from 74⅜ to 73½, with the 5 per cent. preference a point down at 115, and the 4 per cent. debentures unchanged at 113. London Transport "C" moved down sharply to 68¼.

Argentine railway stocks reacted, and B.A. Gt. Southern ordinary was 12½, compared with 13¼ a week ago. Among French rails, Nord further rose to 89 and Midi and Orleans to 77. Canadian Pacifics declined from 15⅜ to 14⅜.

CALCUTTA TRAMWAY SALE.—The Bengal Government is now considering the question of the purchase of the Calcutta Tramways Company's business by the Calcutta Municipal Corporation. According to a Reuters report from Calcutta dated September 12, the Government has asked the Corporation for the specific terms and conditions relating to the appointment of an agent to carry on the business of Calcutta Tramways and also for details of the financial arrangements in case of purchase.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1943	Prices: Lowest 1943	Prices: September 5, 1944	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	3.9.44	33,950	+ 330	35	1,032,240	1,000,900	+ 31,340	Ord. Stk.	15¾	10	11¼	Nil
	Argentine North Eastern ...	753	2.9.44	16,422	+ 2,886	9	149,382	131,586	+ 17,796	,,	7⅞	5	5	Nil
	Bolivar	174	Aug., 1944	5,854	+ 1,346	35	42,517	41,913	+ 604	6 p.c. Deb.	22¼	18	17½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	23½	19	19	Nil
	Buenos Ayres & Pacific ...	2,807	2.9.44	113,400	+ 24,000	9	1,017,180	759,120	+ 258,060	Ord. Stk.	8¼	5¼	5¾	Nil
	Buenos Ayres Great Southern	5,080	2.9.44	162,180	+ 1,020	9	1,489,560	1,310,940	+ 178,620	Ord. Stk.	17⅛	9½	12	Nil
	Buenos Ayres Western ...	1,924	2.9.44	58,380	+ 420	9	546,960	444,060	+ 102,900	,,	16	9¾	11	Nil
	Central Argentine	3,700	2.9.44	171,750	+ 27,480	9	1,533,384	1,191,258	+ 342,126	,,	10¼	6½	9	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4⅜	3	4	Nil
	Cent. Uruguay of M. Video	972	2.9.44	27,938	− 2,726	9	281,664	287,506	− 5,842	Ord. Stk.	7⅜	4¼	4¼	Nil
	Costa Rica	262	July, 1944	28,322	+ 5,071	4	28,322	23,251	+ 5,071	Stk.	16	12½	15	Nil
	Dorada	70	July, 1944	28,381	+ 1,956	30	177,690	146,917	+ 30,773	1 Mt. Deb.	96	92	97½	6¼
	Entre Rios	808	2.9.44	21,234	—	9	204,708	183,882	+ 20,826	Ord. Stk.	9	5¼	5	Nil
	Great Western of Brazil ...	1,030	2.9.44	19,500	+ 2,700	35	749,600	546,800	+ 202,800	Ord. Sh.	59/9	24/4½	32/-	Nil
	International of Cl. Amer. ...	794	July, 1944	$577,243	− $3,278	30	$4,777,756	$4,485,160	+ $292,596	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	2⅜	1⅛	1	Nil
	La Guaira & Caracas... ...	22¾	Aug., 1944	9,355	+ 2,070	35	64,295	68,425	− 4,130	5 p.c. Deb.	90	80	79	6¼
	Leopoldina	1,918	2.9.44	48,640	+ 10,022	35	1,600,248	1,197,600	+ 402,648	Ord. Stk.	7¼	4	5	Nil
	Mexican	483	31.8.44	ps. 736,600	+ ps.34,300	9	ps. 4,208,200	ps. 3,659,100	+ ps. 549,100	Ord. Stk.	1⅛	⅜	⅜	Nil
	Midland Uruguay	319	July, 1944	18,039	+ 1,585	4	18,039	16,454	+ 1,585	—	—	—	—	—
	Nitrate	382	31.8.44	6,808	− 2,090	35	126,056	102,148	+ 23,908	Ord. Sh.	83/9	71/3	67/6	£314/1
	Paraguay Central	274	1.9.44	$57,118	+ $2,758	9	$510,162	$499,230	+ $10,932	Pr. Li. Stk.	75	51½	71	8½
	Peruvian Corporation ...	1,059	Aug., 1944	127,085	+ 20,162	9	245,725	206,941	+ 38,784	Pref.	17⅛	10⅜	11⅛	Nil
	Salvador	100	June, 1944	c 80,000	− c 26,000	52	c 1,484,000	c 1,243,000	+ c 241,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	71	57	48	£4 3/4
	Taltal	160	July, 1944	1,815	− 1,700	4	1,815	3,515	− 1,700	Ord. Sh.	37/6	20/-	17/6	Nil
	United of Havana	1,301	2.9.44	49,710	− 5,921	9	432,946	472,111	− 39,165	Ord. Stk.	1/16	3⅛	3	Nil
	Uruguay Northern	73	July, 1944	1,438	+ 51	4	1,438	1,387	+ 51	—	—	—	—	—
Canada	Canadian Pacific	17,035	31.8.44	2,077,800	+ 181,800	35	42,064,400	37,946,000	+ 4,118,400	Ord. Stk.	18	13⅞	14⅛	3⅛
India†	Barsi Light	202	July, 1944	24,878	− 3,817	17	100,365	91,770	+ 8,595	—	—	—	—	—
	Bengal-Nagpur	3,267	July, 1944	988,650	− 17,775	17	4,183,275	4,235,325	− 52,050	Ord. Stk.	104½	101½	121½	£3 5/10
	Madras & Southern Mahratta	2,939	Mar., 1944	358,125	− 7,925	52	10,447,866	8,913,924	+ 1,533,924	—	—	—	—	—
	South Indian	2,349	20.12.43	199,410	+ 24,449	37	5,321,558	4,562,445	+ 750,113	—	—	—	—	—
Various	Egyptian Delta	607	10.8.44	18,130	+ 3,123	22	240,489	182,170	+ 58,319	Prf. Sh.	6 1/16	2⅞	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	45	32	48	Nil
	Midland of W. Australia ...	277	July, 1944	19,178	− 15,047	4	19,178	34,225	− 15,047	Inc. Deb.	101	93	99½	£40/5
	Nigerian	1,900	27.5.44	254,099	− 2,789	12	—	—	—	—	—	—	—	—
	South Africa	13,291	15.7.44	911,388	+ 12,083	15	13,072,996	12,431,530	+ 641,466	—	—	—	—	—
	Victoria	4,774	April, 1944	1,188,999	− 212,162	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of 1/16. Argentine traffics are given in sterling calculated @ 16⅔ pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee